GLEANINGS IN BEE CULTURE

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EDITORIAL

By E. R. ROOT.

THERE is a possibility and even a probability that we shall have a late spring, owing to the mildness of the winter.

THE honey-pump is an innovation that is now being introduced by bottlers and large extracted-honey producers. It is connected to a small electric motor or to the gasoline-engine that drives the extractor. With such a pump one can locate his extractor on a level with the yard, and deliver the honey to any reasonable elevation or distance.

CLOVERS NOT ALL DEAD.

REPORTS continue to show that white clover has not been killed to any great extent by the drouth of last fall. There are some sections, of course, where it has been killed entirely; but we are of the opinion that, in the great majority of cases, the plants will be found in great profusion. The heavy storms that have been raging over the country during the last few days will start these clovers with a rush.

PROSPECTS GOOD FOR CALIFORNIA.

REPORTS from California still indicate bountiful rains, and prospects in that State were never better for a good crop of honey. While it is true that there must be spring rains, it is also true that winter rains are likely to be followed up by such spring rains. It is about time now that California had a fair crop of honey, and conditions are exceedingly favorable at this writing, Feb. 20.

BEE-KEEPING AS A PROFESSION OR AVOCATION.

THE reader will doubtless be much interested in the general discussion in this issue of the subject of bee-keeping as a business or a profession. Over and over again the question is asked by some one outside of the bee-keeping ranks, "Do bees pay?" Let the reader go over carefully what is said on page 138, for we have attempted to give only a conservative, accurate, and honest estimate of the true status of the industry as we find it in the United States.

CAPPING-MELTERS FOR THIS YEAR.

A CAPPING-MELTER will be placed on the market this season. This will enable one to have all his cappings while extracting melted up into nice marketable cakes of wax at the end of the day's work, while the honey will be in find condition to bottle. Careful experiment shows that, if one works right, neither the quality of the honey nor of the wax will be affected in the least by the operation.

By the old plan, one is likely to have a lot of cappings thrown around in sundry boxes or barrels for months at a time. Sometimes the moth-worms will get into them. At other times the honey sours and the cappings mildew. It is always advisable, when possible, to convert a commodity like cappings into a merchantable product as soon as possible. The capping-melter enables one to do this very easily.

GOOD WINTERING OF OUTDOOR BEES.

REPORTS from all over the country indicate excellent wintering on the part of outdoor bees. The winter has been comparatively mild, with every now and then a breakup in the weather, a cold spell being followed by a warm one, giving the bees a good chance to have a cleansing flight.

It is probably true that, for this winter at least, many bees that are housed in cellars will not be in as good condition as formerly, owing to the warmer winter. Unless a cellar is well ventilated, bees will probably become uneasy by this time. In all such cases we advise carrying them out of the cellar.

DANGER OF STARVATION.

THE mildness of the winter thus far will suggest the importance of looking over some colonies that were short of stores last winter, to discover if they have sufficient to carry them through till spring. Brood-rearing in most cases will have already started, and will continue on through this month to a greater or less extent. This will mean that the stores will go pretty fast. When one finds a colony that is short, and does not wish to break up the cluster, he can lay a frame of sealed honey flatwise on the top of the other frames. If he has no sealed stores he might feed sugar syrup; but as this is too stimulative at this time of the year, we would advise giving bee-candy instead. This is made by making powdered sugar and honey into a stiff dough. It should then be placed in shallow wooden pie-dishes; for after the moisture of the bees gets on it, it may melt and run all over the frames. We say *wooden* pie-dishes because metal or porcelain is too cold to put right over the cluster.

UNCAPPING WITH A STEAM-HEATED UNCAPPING-KNIFE.

IN Europe some bee-keepers have for several years back been using a steam-heated uncapping-knife. This is nothing more nor less than a regular knife, the blade of which is hollow. A small rubber tube carries a little jet of steam

from a miniature boiler to the aforesaid hollow blade. As this blade can be kept hot continuously while uncapping it does not require scraping or cleaning, because the cappings and honey will run off almost immediately. We shall soon have some illustrations showing the outfit.

CORRUGATED PAPER IN SHIPPING-CASES.

THIS year will see a large use of corrugated paper in comb-honey shipping-cases. The bee-keeper who neglects to use it, will be left in the race. We verily believe that the no-drip cleats have seen their day.

In double-tier cases, there should be a sheet of corrugated paper put not only in the bottom of the case but between the two tiers of sections.

WINTER LOSSES IN COLORADO.

SOME of our subscribers in Colorado have reported severe winter losses. Mr. Frank Rauchfuss, Manager of the Colorado Honey-producers' Association, writes as follows:

> The bees in this section of the State are wintering only fairly well, which is partly due to the poor quality of honey that was gathered in the latter part of the season. Near Denver very heavy losses have so far occurred, and some of these can hardly be laid to poor stores or lack of sufficient bees; and I think that, in such cases, it must be attributed to the injurious effects of the smelter fumes. One apiary which my brother had, seven miles from the city, was afflicted in this way the latter part of August, and is by this time almost entirely wiped out.
>
> Denver, Col., Jan. 21. F. RAUCHFUSS.

We should be glad to get reports from Colorado bee-keepers as to how far smelter fumes may be doing damage, not only in the matter of wintering, but to the general business of honey production; for it appears that these fumes destroy the plants that would yield the nectar.

SENDING BEES BY THE POUND AND HALF-POUND, BY EXPRESS.

SOME years ago we sent packages of bees by express without brood or comb. These consisted of a light skeleton framework surrounded by wire-cloth with compartments for holding queen-cage candy, and a pound of bees. The bees were shaken into these cages through a large funnel. The cage (funnel and all) was put on the scales; and whenever a pound or half-pound was shaken off, depending on the amount required, the funnel was removed and the cover put in its place.

But we gave up the business of shipping bees in this way, because so many died *en route;* but in the years that have intervened we have learned some of the causes that contributed toward these losses, and hence we propose to try some experiments this coming season. If they prove to be successful it means that bees can go at the same rate as merchandise postage plus one-half; for express matter under 4 lbs. goes at the same rate as postage to get the business.

The packages containing half a pound of bees will weigh about 1½ lbs.; a pound package about 2 lbs.; so it can be seen that the weights are well under 4 lbs.

If the experiment proves to be a success it should displace the scheme of sending bees on combs of brood or honey, or both. Besides effecting a great saving in express charges, it will eliminate the possibility of sending foul or black brood from one portion of the country to the other.

SENDING VIRGIN QUEENS BY MAIL; HOW TO INTRODUCE THEM SUCCESSFULLY.

SOME years ago virgin queens were sent through the mails; but owing to the difficulty of introducing them to strong colonies the practice seems to have been all but given up; but in these latter years we have learned that a virgin queen more than two days old should be introduced, not to a strong colony or one of medium strength, but to a very weak nucleus of not more than two or three hundred bees. She will usually be accepted by such aggregations, and when once laying she may thereafter be introduced to any strong colony.

To make up these little two or three hundred-bee nuclei, take a couple of unfinished sections containing honey; make or produce a small box, just large enough to receive them. This box should have a cover and an entrance not larger than a quarter-inch hole.

Go to any hive when the bees are flying the heaviest, and dump in about a cupful of bees. In about 12 hours one may introduce a virgin with perfect safety, because the old flying bees will have gone back to the parent colony from which they were taken. The young bees will, of course, accept any thing. They will afford their young princess a safe home until she is mated, after which she may be readily introduced anywhere.

Another way to introduce virgins is to put them on hatching brood. The young bees will, of course, receive them kindly.

It is true that five and six day-old virgin queens may be introduced at times to strong colonies; but three times out of five they will receive either rough treatment or be killed outright. Very often these old virgins, if they escape being killed, will have torn wings or missing legs. Such treatment incapacitates them from doing full duty afterward.

SINGLE OR DOUBLE TIER SHIPPING-CASES; A GENERAL REVIEW OF THE MERITS OF EACH; SHALL WE DISCARD THE SINGLE-TIER 24-LB. CASE?

IN Stray Straws, this issue, Dr. Miller draws attention to the arguments made by Wesley Foster, in his department of "Bee-keeping Among the Rockies," page 1312, Nov. 1st, in favor of the double-tier shipping-case as against the single-tier. At the time these were published, the editor was busy in a county local-option temperance fight. As there was much in that issue he did not read, he is now obliged to confess that he did not see Mr. Foster's objections to the single-tier case until Dr. Miller called his attention to them. In order that the reader may get the matter fully before him we are reproducing several arguments put forward by Mr. Foster. They are as follows:

> First, in handling a carload of honey in single-tier cases one will feel twice as tired as after handling the same amount in the double-tier. One can not get the hand-hold as close to the edge as with the double-tier, and there is less room for the fingers.
>
> Second, if a case is picked up by the corners it will often twist enough in carrying to break or crack some of the honey. This is almost sure to occur if one carries two cases at a time and does not grip them just right.
>
> Third, the top of the sections is flush with the top of the sides of most of the single-tier cases, making breakage almost sure. In shipping, expressmen and freight-handlers drop the end of one case in the middle of another case on the pile; and if they do this at all roughly the breaking of comb is certain. Cases are often stepped on; and a single-tier case simply will not stand

this usage, while a double-tier case with half the surface is safe, provided there is an eighth-inch space between the cover and the top of the section.

Fourth, from the grocer's standpoint the glass in a case is for showing the goods; and the more goods there are shown, the better the impression, and the more honey sold. Furthermore, it is a guarantee that at least a fourth of the honey is all right if a double-tier case is used.

Fifth, a single-tier case takes up twice as much room on the counter, showcase, shelf, or floor; and since one can not put any thing on top of it and still get honey out of it, the saving of half the floor space by the use of the double-tier places it far in the lead.

The objection brought against the double-tier is that broken honey will leak on to the section below. Leaky and broken honey should not be cased for shipment any way, and experience shows that this objection is not worth considering.

We can not quite see the force of the argument in No. 1. In other words, we do not understand why the hand-hold can not be as conveniently located in one as in the other.

There may be something in No. 2; but why should any one try to pick up a shipping-case by the corner or corners? If handled properly there would be nothing in the argument.

As to No. 3, there is no reason why the sections should be flush with the tops of the sides of the single tier more than the double tier. The objection, if any at all, can easily be remedied. But there *is* something in the fact that the large surface of the single-tier case presents a larger exposure to the tops of the sections; but we know of no reason why a single-tier case should be stepped on more than a double-tier. A careful commission man or honey-buyer (to say nothing of the honey-producer, who ought to know better) would not allow his men to do any thing of this kind. But there *are* careless people, and it is conceivable, therefore, that if one steps on the single-tier case his weight would do more damage to the sections in such case than to those in a double tier of the same capacity.

We do not see very much in No. 4. The double-tier case shows a half more honey surface than the single-tier of the same capacity. If the honey were *all* fancy, then we will admit that the double-tier would show it off to better advantage, because it would show more of it; but if the honey were below No. 1, then the less it showed, the less unfavorable would be the appearance.

But if this be true it is a plain admission that the double-tier case will show more truly the nature of the honey, because to the extent *that the single-tier covers up defects*, to that extent *it deceives the purchaser*. From this point of view, argument No. 4 may be a good one, only it seems to be stated somewhat backward. Instead of giving a "better impression," the single-tier would have the advantage, providing the goods were not all No. 1 and fancy. To restate the argument we would say that a double-tier case is more of a barrier against deception than the single-tier.

It is true, referring to No. 5, that a double-tier case takes less room on the counter. On the other hand, it puts more weight on a small space on top of a glass showcase. In other words, a single-case of 24 sections would be less liable to break a glass than a double one of the same weight; and, again, the single-tier can be piled up with less danger of toppling over than a double-tier.

Honey is very often hauled on drays and express wagons. Two or three single-tier cases can be piled on top of each other, and take up very little room in the wagon, while the double-tier would have to be put in the bottom of the wagon; and if heavy goods were piled on top of miscellaneous shapes and sizes, more damage would be received.

The one objection against the double case as given in the last paragraph quoted is hardly met. Even if first-class sections are put in the case, and nothing but such goods are shipped, we know, as Mr. J. E. Crane points out, that they are likely to receive rough usage in transit, either on the dray or in loading on the cars. Many nice combs are broken on trucks, so it follows that the one great objection to the double-tier case still holds except as it may be overcome by the use of corrugated paper. Reference to this will be made later.

There is another serious objection to the double-tier case. As it approaches more nearly the shape of a cube, careless freight-handlers have a tendency to lay it on its back or face. If the honey arrives in that condition it is almost sure to be broken. The single-tier 24-lb. case can hardly be set down in any but the right way.

But there is one objection to the single-tier case that Mr. Foster has only indirectly touched on; and that is, that a *shallow flat* box can not be quite as strong, made of the same thickness of lumber, as one of the same capacity that is more nearly cubical in shape; or, to put it in other words, other things being equal, the more nearly a box approaches a cube, the stronger it is. It would follow, then, that a single-tier case of the *same strength* as a double-tier of the *same capacity* would have to be made of thicker lumber, top and bottom, and heavier nails would have to be used. This would increase the cost both to the manufacturer and the consumer.

From the standpoint of the manufacturer it would be cheaper to discard the 24-lb. *single*-tier and adopt in its stead the *double*-tier of the same weight. Such a case would use up smaller pieces, making it possible to use a single board for a cover in many cases where the single-tier would require two or three boards. It is, therefore, our opinion that the supply manufacturer should cater more to the double-tier case when capacities reach 20 or 24 pounds. Of course, no one would think of making a double-tier 12-lb. case. It follows, then, that the great bulk of shipping-cases could be reduced down to the 12-lb. single-tier or 24-lb. double-tier. If the trade could be educated to these two sizes the manufacturer would have to make only one cover and bottom for both sizes; and, what is more, he could get his lumber cut up to much better advantage.

But the objection that the upper sections in the double-tier cases would drip on the lower ones may be urged. Corrugated paper is now coming to be used very largely in shipping-cases. A sheet of this should be put in the bottom as well as between the upper and lower sections. The upper sheet would catch all the drip, and at the same time provide an excellent cushion between the two tiers of sections, eliminating to a great extent the possibility of breakage. Taking it all in all, we feel almost inclined to favor the double-tier case, because, with the adoption of corrugated paper, the main objection against such case (breakage and leakage) can be very nicely overcome.

STRAY STRAWS

DR. C. C. MILLER

QUEENLESS BEES will build worker comb *if weak enough.*

BEES MAKE propolis out of various gums, page 114. Do they make it or find it ready made?

T. L. SHAWLER, sorry to say you are mistaken, page 115. Illinois, which adjoins Iowa, has no foul-brood law.

INSTEAD of a single central hive-entrance in winter, F. Brequin has two smaller entrances, one at each side of the center. He thinks this prevents moldy combs.—*L'Apiculteur.*

G. H. SHIRK'S weighing device, page 105, is much like mine, only better. It might be an improvement to have that clamp work ice-tong fashion. But, say—as a lifting-machine doesn't that take the lead?

AFTER SOAKING candied honey in combs, extract, feed the honey to bees, and give the combs to the bees to clean, p. 114. Why is that better than the simpler way of giving the whole thing to the bees in the first place?

NOT A BIT, friend Doolittle, have you forgotten about that clover-crop business, p. 99. The failure here of the clover harvest occurs oftener with bloom than without it. I'm never very much concerned to know whether there is a good growth of clover, but much concerned to know whether the bees will get any thing from the blossoms that occur.

THE OTHER DAY my bee-cellar went up fo 60 degrees, and the bees scarcely minded it. But the air was about as pure as outdoors. If the cellar had been close, there probably would have been a high old time. [This only emphasizes what we have been trying to teach, that cellared bees can stand considerable high temperature providing they have sufficient ventilation. We have had something like 75 colonies in our cellar in March that were very quiet when the temperature was up to 65, and had been for days; but, mark you, there was a large amount of fresh air.—ED.]

BEEN WATCHING to see whether any one would answer Wesley Foster's advocacy of double-tier shipping-cases, p. 1312. Either his arguments should be answered or the catalogs should be changed, which practically say double-tiersshould never be used. J. E. Crane, p. 100, is the first to dare to tackle W. F.; and as the matter now stands, J. E. C. seems ahead, at least on that one point. But why will not the non-drip paper dish do just as well for the upper as for the lower tier? I insist the catalogs should answer Mr. Foster or change their advice. [See editorial notes elsewhere in this issue.—ED.]

SLOWLY I'm learning that what's best for me may not be best for the other fellow. Last year a good many of J. E. Crane's best queens failed in May. Very, very rarely does that happen here. I don't know whether it's locality or the bees. But I think it's true that my queens are nearly always superseded at least a little before there is any noticeable failure. So the best thing for me is to leave the superseding of all good queens entirely to the bees, although it may not be best for the other fellow. [We do not quite see how locality could affect this proposition. We should be inclined to think the difference in results was owing to the difference in strains. Possibly methods of management may have something to do with it.—ED.]

MR. EDITOR, as to sending virgins to a fertilization station, you say, p. 74, that we can send from California to Maine 3 lbs. for 68 cts., and "so we do not have to wait for parcels post." Well, I don't know that we do. We might afford to pay 68 cts. to have a virgin properly fertilized. But we ought not to be satisfied until we have parcels post at as low rates as they have across the water. Certainly we ought to have as good rates for sending to any point in this country as we now have for sending to Germany. Parcels post to Germany costs 12 cts. per lb., so you can send a ½-lb. package of bees to Germany for 30 cts., or less than half of 68 cts. Besides, we can send by express only where there are express offices; and we ought to have a chance wherever there's a postoffice. [While parcels post would certainly be a great advantage to the people, and we wish we had it, yet so far as sending virgin queens and bees is concerned we can send them from Maine to California by express for a comparatively small figure providing we get the weight of the package and all so that the mails can compete.—ED.]

"PROBABLY three-fourths of the localities north of the Ohio River have winters during which the bees can have flights every two or three weeks." That remark of yours, Mr. Editor, p. 98, startled me. Then I got the map, and I found that the mouth of the Ohio River is as far south as latitude 37°, so that you might include every thing north of that. Even then it astounds me, it's so utterly different from the situation here at Marengo. I never knew a winter when bees could have a flight every two or three weeks, and never expect to. This winter comes closer to it than ever before. The periods so far without weather for flights have been 32 days, 6 days, and 18 days. The present period may be much longer. But for every winter like this there will be three that confine the bees three to five months at a stretch I'm not saying you're wrong—only why should this locality be so exceptional? [The statement that three-fourths of the localities north of the Ohio River afford bees a flight every two or three weeks may seem a little strong; but when we remember that many of the coast localities in New York and New England have a comparatively mild temperature, and when we remember further that there are vast areas of country south of Cleveland, Toledo, and Chicago that are very much milder than that of Marengo, the statement will not seem so very far out of the way, after all; and especially so if we take into consideration all the country on the Pacific coast on a line running through the mouth of the Ohio River. We had in mind these localities. Probably three-fourths of the bees north of the Ohio River are wintered outdoors. Certainly all of them south of that river are.

It is probably not far from the truth when we say that three-fourths of the bees north of the great lakes are wintered indoors, for the very good reason that in most of those localities there are no flight-days to speak of during the winter.—ED.]

NOTES FROM CANADA

By R. F. Holtermann.

OUTSIDE WINTERING.

In this locality bees had a splendid fly Jan. 24. The ground was free from snow, the wind balmy, and the temperature 59 in the shade. This flight practically means successful wintering for colonies properly put up. To my surprise, Mr. Byer said that his bees had no flight. One hundred miles sometimes makes a great difference.

BEES WINTERING WELL.

Jan. 29 I had a visit from J. L. Byer, Markham, Ontario. We went to the bee-cellar. He thought the conditions there indicated very favorable wintering. Mr. S. T. Pettit, Aylmer West, Ont., who is in his eightieth year, was also here. Mr. Pettit, who has a remarkable record in wintering bees, thought the bees were in excellent condition. Owing to the great changes of temperature I think it has been a rather unfavorable winter for bees in the cellar.

THE FERTILIZATION OF BLOSSOMS.

It is stated in the Algerian bee-journal, *Nahla*, that on the island of Guadaloupe (Lesser Antilles) bees are held to be of the greatest importance for the purpose of the cocoa and coffee trees. Before the introduction of bees, although the plants blossomed profusely, they yielded little or no fruit. Now the returns are not only regular, but they have more than doubled. We ought to send a few of the agriculturists who live among us to the above country to be convinced.

WINTERING BEES IN A WARM ROOM.

On page 72 you refer to a colony of bees in the window of one of your offices. I also noticed a previous reference to this colony. At that time I felt like writing and giving it as my opinion that, unless the bees could get a cleansing flight within a reasonable time, trouble would begin. In my estimation your statement, "Every two or three weeks there has been at least one good day when the bees could get an airing," is largely an explanation of your success. Where bees can not get this liberty I am afraid there will be trouble. This is an exceptional winter.

OUTDOOR-WINTERED COLONIES UNDER SEALED GLASS COVERS.

Your editorial report, page 71, as to the condition of those colonies interests me much. As we would expect, the moisture condenses in the coolest part of the hive and drops down. In a mild winter this may be all right (c-o-m-p-a-r-a-t-i-v-e-l-y speaking); but with long-continued cold, this moisture is likely to condense on stores not covered by bees, and injure them. The dampness on walls and bottom-board must be about as healthful for the bees as damp walls, etc., in a living-room. During prolonged cold the moisture at the entrance will freeze if reports in this part of the country are correct. I would much sooner have the moisture pass off at the top through packing. If the gables of the cover have a ventilator, and an empty space be allowed between the roof and the top of the packing, the moisture soon passes away.

SIZE OF HIVES.

As it has been stated in the apicultural press that the eight-frame Langstroth hive won the debate at the Detroit convention it might be well to quote the jury decision as given on page 90 of the National Bee-keepers' Association Report: "The report of the committee is that, according to the weight of evidence, in the majority of cases the large hive had the preference; but under certain circumstances, different methods, and different men, the small hive was the best." That means the large hive won, but the jury slightly exceeded their duty by letting the 8-frame hive down as easy as possible.

HEATHER BEE-KEEPERS.

J. C. A., Grangemouth, in *British Bee Journal*, page 33, gives an interesting account of taking bees to heather. He states: "It was now about time to get ready for the moors. This job was begun on the evening of Aug. 11, and all was ready for our annual drive of 24 miles in time to reach the moors by 3:30 next morning." He secured an average of 50 lbs. per stock, of comb honey. Again, he makes the statement, "I would not miss the pleasure of my annual trip to the heather for a good deal. . . . Out of a family of seven sons I am the only one who would care to touch a hive of bees with a 20-foot-pole; yet they, like myself, had all to do their share of watching swarms, etc., when they were young." Bee-keeping does not always run in the blood, although I have a good many times had people ask me what I thought about their engaging in bee-keeping, giving as a probable reason for success that some relative kept bees.

HOW SHALL HIVES FACE?

During the next sixty days many will be setting bees on summer stands. When we remember that bees have frequently been known to work on basswood, honey-dew, and other forage shortly after the dawn of day, and long before sunrise, and that they work on days when the sun does not appear at all, and that when nectar is abundant the bees will work until dark, we may be pardoned for not having much faith in the statement that bees do better when the hives face the east, because the sun draws them out earlier in the morning; or when they face the west, because they work later at night. In the *Rucher Belge* M. A. Fouré gives the results of five years' test by weighing the amount annually produced by hives turned north, south, east, and west.

Those facing north produced 55.8 kilos honey; those west produced 54.8 kilos; those east, 50.2; and those south, 49 kilos. The apiary was well sheltered on the north by means of a hedge. The result was attributed to the fact that the bees in the hives facing the north were sheltered from wind, and therefore not drawn from the hives by the sun when conditions for flying were unfavorable, as were those in the hives facing east or south. In my estimation this is sound reasoning.

GLEANINGS FROM OUR EXCHANGES

By W. K. MORRISON

THE COUNTRY LIFE COMMISSION.

The report of President Roosevelt's Country Life Commission has been handed to Congress. It emphasizes the need of a parcels post, good roads, agricultural local schools, co-operation, etc. Bee-keepers will have no fault to find with the report of the commission; on the contrary, I think they will be a unit in indorsing it.

PARCELS POST.

Senator T. C. Platt, the head center of all the express companies, is down and out—*for good.* Now parcels post will get a chance, as Senator Platt had the power to block all parcels-post legislation. In his place we shall have Elihu Root, who is strongly in favor of parcels post. He told the New York legislators who elected him that he was in favor of it, and asked them for an expression of their opinion in regard to it. It was the first thing he did after being elected.

INFORMATION ON NEW IRRIGATION PROJECTS.

Mr. Wesley Foster seems to think that more definite particulars ought to be given in connection with irrigation projects managed by Uncle Sam in person. What he says is true of projects in Colorado, but not of the others. In fact, each project is different. For example, the two in Arizona, one at Yuma and the the other at Phœnix, will be valuable to bee-keepers almost as soon as opened. In fact, there is a honey-producing flora there already. On the two projects in the Pecos Valley, alfalfa had been grown before, so there was no need to wait. At Garden City sweet clover was already well planted, so that, too, was available at once. The projects in Idaho and Wyoming are particularly desirable for bee-keepers; and even if they have to wait, the opportunity is worth waiting for. In a journal like this there is hardly room for any extended description of these projects; besides, a wise man will go and look around before locating his future home. One thing is fairly certain—bee-keeping will be a feature on all these projects.

"THE MENACE OF THE ARID LAND."

The DeLaval Separator Co. has kindly sent me a copy of an interesting paper by Mr. Luther Tucker, editor of the *Country Gentleman.* It was read at the Farmers' National Congress. Of course, it was sent by way of reply to what was said on this page (Jan. 15) relative to the *Country Gentleman's* statement in regard to reclaiming the arid lands. Mr. Tucker thinks the government is pursuing a ruinous policy toward Eastern farmers, who, he claims, can not compete with men who get land for nothing.

Well, take the matter of honey. Eastern bee-keepers have not been ruined by the alfalfa honey of the West, though it would be easy to get up a scare about it. Glucose and other vile imitations of honey have done far more harm; in fact, if it were not for imitation and adulteration honey would command its full value in the open market. What has hurt the poultry business, but cheap preserved eggs which hardly deserve the name of food products? It is the same in regard to butter. The market has been depressed by oleo, and "filled" cheese killed the trade in cheese. It is the same in regard to fruit preserves, jams, jellies, and butters; the farmer is deprived of his market by inferior imitations.

Another thing, the Eastern farmer has been slow to reach the full measure of his opportunities. Solid train-loads of Western apples go thundering through the State after a trip of 3000 miles. Train-loads of Illinois butter produced on high-priced land are poured into New York city, and yet the farmers complain of no market. It is the out-of-date farmer who squeals. The New York farmer has great opportunities.

WHY BENZOATE OF SODA SHOULD NOT BE PUT IN FOOD PRODUCTS; DR. WILEY'S FIGHT FOR THE PEOPLE.

A fierce controversy has arisen relative to the use of benzoate of soda as a preservative of certain food products. This has arisen over the decision of President Roosevelt's Referee Board, composed of distinguished chemists who have apparently decided against Dr. Wiley. The difference is more fancied than real, as the board found that benzoate of soda had some "very peculiar physiological effects" on the human system which it was unable to account for. Dr. Wiley went further and found there was a "serious disturbance of the metabolic functions." The difference in the results may be due to the fact that Dr. Wiley administered the benzoate of soda in capsules, whereas the board used it mixed with the food.

Dr. Wiley, however, opposes benzoate of soda on even better grounds than its deleterious effects on the human system. He holds that it is used only when the fruits used are unsound or actually bad, and glucose is used instead of good sugar, or the conditions of manufacturing are unsanitary. He says (and it is true) good fruits put up with good *granulated sugar* require no benzoate of soda. He takes the ground that the public should be protected, and that the use of benzoate of soda is in the nature of an adulteration, and the man who puts up good wholesome preserves is entitled to the trade. The best manufacturers agree with Dr. Wiley. Such great firms as Heinze, of Pittsburg; the Franco-American Food Co., and the Beech-Nut Canning Co., uphold Dr. Wiley. Because they use only good materials in clean, well-handled establishments, they have no desire to use benzoate of soda.

It looks as if Dr. Wiley were fighting the battle of the people singly; but the forces of good are steadily lining up behind him. He has practically the whole medical profession at his back. The canned-goods men are vigorously supporting him, and even the wholesale grocers.

DR. WILEY SUSTAINED.

In passing the appropriation bill of the Department of Agriculture, the House of Representatives added a rider, to the effect that in future there must be no interference with the work of Dr. H. W. Wiley, the pure-food expert. It is a great pity the House did not take this action sooner.

BEE-KEEPING AMONG THE ROCKIES.

By Wesley Foster.

IMPORTATION OF HONEY (THOMAS' WEEKLY REVIEW).

From Dec. 17 to Jan. 21 honey came in at New York to the extent of 2520 barrels, 236 casks, and 290 tierces, amounting in all to over 1,500,000 pounds in seven weeks—an average of over a carload a day. This honey came from Cuba, Porto Rico, and Mexico. Such importations certainly affect the sale of honey from the Southern States very much, and, to a considerable degree, the honey market of the whole country.

STIMULATION BY MOVING.

I believe that bees are stimulated to work with more energy, and raise more bees by being moved in the spring, for I have observed it in several cases.

In May, 1908, my brother and I moved 103 colonies of bees about ten miles; and although these particular bees were not above the others in strength or stores they made almost twice the surplus (which was not much) that our other yards did. They got into the supers before the others had commenced to cap any honey in the brood-chambers.

PURE-FOOD EXPOSITION.

The Denver Retail Grocers' Association is engineering a pure-food exposition to be held in the Auditorium, the largest hall under roof in the West. There are over one hundred exhibitors, and great success is assured. The fair opens Feb. 22, and continues for two weeks. There are liberal rates on all the railroads.

The Colorado Honey-producers' Association has one of the best booths to be had; and if any one wants to see honey given the advertising it deserves, he'd better come and see what bee-keepers can do in the way of an exhibit.

A remark was made by Mr. Dyer, at the Colorada State bee convention that the work of the Colorado Honey-producers' Association comes out wherever bee-keepers get together. There is not a doubt that the business done by the association touches the bee-keepers more vitally, whether members or not, than any bee organization in the West. The association now has members and customers in every western State where honey is produced. Five people are employed at the store and office. Any one coming to Denver to see the food show and exposition should drop in and see them.

HERMAN RAUCHFUSS.

Herman Rauchfuss and I ate at the Manhattan restaurant last night. Herman is my senior by 25 years, but for the sake of space and friendship I will call him Herman. I want to show a little of his personality, and also give some of his views and experience along the bee-line. "Genial" is the word that fits him best. He is a good friend in that he likes to hear what you have to say, and he is not holding his sleeves for fear some secret will slip out.

EARLY SPRING MANIPULATION NOT NECESSARY.

Herman says a good hive of bees with plenty of stores does not need to be looked at till the first of June. That, if correct, would eliminate artificial stimulation of brood in the spring, any way. It has been his experience, within the last few years, that a nucleus with a vigorous queen is more valuable on the first of June than a hive full of bees and honey. The surplus is gathered here between July 10 and August 20, and for this flow the nucleus will be in better condition than the full colony which has filled up with honey instead of bees.

CAUCASIANS AVERAGE BETTER THAN THE ITALIANS.

He says that the Caucasian bee, without the benefits of scientific culture and breeding, is superior to any known race of bees, the Italians not excepted. He has kept them since 1900, and their record is a delight to hear. The first queens that he received from Mr. Frank Benton were not the equal of the Italians; but a little later he got some more from him which have made good records. These are the ones he now has. In the spring of 1907 the bees were starving in several of his yards, and he was feeding sugar. When he came to the Caucasians, however, he found that they were sealing honey in the brood-chambers. The honey was of a reddish color—a honey he had never seen before—and the source he does not know. The Caucasians were storing this honey in four yards where the other bees required feed.

The vitality of the bees and queens is remarkable. Shipping through the mail, or confinement in an observatory hive, seems to affect them very little. An observatory hive was kept at the State fair for two weeks, and not a dozen bees were lost. He has kept virgin queens in mating-cages for three weeks, and then had them fertilized.

This can be partly explained by the fact that they are not excitable, and are very quiet on the combs. During manipulation they will not run over the combs or out of the hive, and the loss of honey from opening bees on a good honey day is not noticeable with the Caucasians.

The objection has been made that they collect so much propolis. This is true; but the propolis is not sticky, but more like putty, and is easily scraped out of the way. In color it is a grayish green.

For winter these bees build an ingenious storm-door of propolis. It is like a drift, shutting the entrance and slopes back two or three inches toward the center of the hive, extending up above the ends of the frames. Through this drift are small round holes for entrances. This scheme keeps out mice and wind and snow.

Caucasians do not soil the comb cappings with propolis, although they do use old comb in their new work somewhat. These Caucasians are the ones whose tongues Prof. Gillette measured, and found longer than any he had ever before seen.

In 1907 the Caucasians gave Herman an average of seven supers of comb honey to the hive while his others averaged only half as much.

[Our experience with Caucasians, as has been reported in these columns, has not been very satisfactory.—Ed.]

CONVERSATIONS WITH DOOLITTLE

CHOOSING A LOCATION.

"Mr. Doolittle, if you were to choose a location, what kind would you select?"

"If I were at liberty to choose a location where I desired, and could find such a one, it would be in a place where the land slopes gently to the southeast, because such a slope brings on the earliest vegetation, and consequently the earliest brood, and from this the earliest force of bees. In other words, in a district where white and alsike clover abound, such a slope will often yield a good harvest of honey, while a slope toward the west or north might give but little."

"But I should suppose that a southwest slope would be the warmest, as that would allow the afternoon sun to shine squarely on the land."

"This would be right were it not that our prevailing winds are from the southwest—something I have noted in nearly all parts of the country in which I have been, from the fact that the tops of all trees growing out in the open were inclined over to the northeast. Now, while the afternoon sun is undoubtedly the warmest, on an average, during the day, yet it is more than offset by these prevailing winds which are so strenuous that they keep vegetation backward, and the bees as well, unless there is a strong windbreak of some kind. But this is not all there is in a southeast exposure. The bees get the benefit of the morning sun, especially if the entrances to the hives face in this direction."

"What about pasturage?"

"I should like some willows, the pussy, white, and golden, to stimulate early brood-rearing. The pussy willow gives about the earliest pollen from which the bees can get a sufficient supply to stimulate brood-rearing. The white willow, or the kind which is set for fencing in many localities, gives the first honey of any account. The golden willow commences to produce nectar a little before the white is out of bloom, and yields to that extent that the nectar can be seen sparkling in the tags with the first rays of morning sunshine, and it continues till darkness drives the bees home for the night. Now, while there is rarely a surplus from this source, yet I have known from five to fifteen pounds of honey to be stored in the hives from the two last-named willows in a good year. And under such circumstances this is a mighty leverage toward a large force of bees in time for the white clover. But don't lose sight of the pussies, for the first pollen paves the way by setting all the energies of the hive in operation. "After the willows I should want sugar (hard) maples in plenty, for they are always rich in pollen; and as they come on the heels of the willow nectar, the activity started is still more accelerated, and especially if the atmosphere is right, so that some nectar is secreted to use with the pollen, as is quite often the case where the weather is warm, and the atmosphere charged with electricity. After the maples I should want many apple-orchards, as these give us plenty of honey from apple to white clover, which, with alsike, should also be abundant."

"Why do you want all of that nectar yield before the clover bloom? I should think the honey would crowd out the brood."

"Brood-rearing, when at its height, as it should be during maple bloom and that from the apple, requires a whole lot of nectar if it is to go on to the best advantage; and as there are usually from 16 to 24 days from the blooming of the apple to where the bees secure nectar from the clovers, 25 to 30 lbs. to the colony at the close of apple bloom makes the bees feel so rich that they just boom ahead with their brood, no matter if nothing but pollen is obtained from the fields."

"But I should think there would be little room for brood at the close of apple bloom."

"That depends upon the size of hive you are using. If a hive has 15 inches in the clear, so that ten Langstroth frames can be used advantageously for brood-rearing, said 30 pounds of honey will be stored in little more than four of the combs, and six Langstroth frames full of brood is a pretty good showing as early in the season as apple bloom. But with all strong colonies, if the apple bloom is yielding nectar freely it is better to put a queen-excluder on these colonies, and over this a hive full of empty combs, as is given in A Year's Work in an Out-apiary, when the bees have ample room to spread themselves in both brood and honey. The clovers should be abundant. There should be hundreds of acres within the range of the bees' flight. Some seem to think that a few acres of any nectar-producing plants is all that is required. When mother's front yard, consisting of less than one-eighth acre of land, had a continuous bloom of some of the many kinds of flowers she cultivated, tens if not scores of people would say to me, 'No wonder your bees do well, as they have access to the flowers your mother has in bloom continually in her flower-garden!' A single colony would have starved to death if there were no other bloom. Then after the clovers I should want plenty of basswood, and that not only in a valley, but on a hillside or mountain. The bloom at the top would not be open until that in the valley was past and gone. In this way we could get a continuous bloom, as it were; for after that in the valley opened, more would continue to open up the hillside, day by day, till the top of the mountain would be reached; and as this last would open after that in the valley has all gone out of bloom, we should still have as long a yield of nectar before us as we had at the opening of the first, had there been no basswood-trees save in the valley. In other words, instead of a yield of basswood nectar continuing from ten days to two weeks, with the same confined to the valley, we should have a yield of from 20 to 28 days where the basswood beginning in the valley continued on up to the mountain top. The first ten days of any bloom only fairly gets things nicely started; and if it stops there we have only a limited yield; but with every added day of nectar secretion comes a storage of a still greater acceleration, so that the days beyond the twenties will give twice the results which those did prior to the ten; and even with less than half the yield, the completing of the thousands of sections not yet quite marketable makes the days above the twentieth of double value. After the basswood I would have a locality where much buckwheat is raised. And if we could have plenty of fall flowers we should have an ideal location. This is all on the supposition that I could find what I wanted."

GENERAL CORRESPONDENCE

THE TARIFF ON HONEY AND WAX.

Is there Danger from the Disease Brought in by Foreign Honey? the Tariff on Wax Not Favored.

BY J. L. BYER.

In GLEANINGS for Nov. 15 you ask, Mr. Editor, for opinions on the tariff resolution presented at the recent N. B. K. A. convention held in Detroit. Not being an American citizen, it would be presumption on my part to say any thing on the question if it were not for the fact of there having been *two* resolutions passed. As a member of the resolution committee I might say that these matters were discussed by the committee quite fully, and it was thought that, as it was such an important subject, perhaps it would receive a fuller discussion if it were brought before the meeting without any reference to its having been considered by the resolution committee. Accordingly the two resolutions—one concerning the United States and the other one Canada, were drafted and handed to Mr. France, with the request that he present them to the meeting. This was done, but, unfortunately, as is often the case in the closing hours of a convention, there was no time for any discussion, and the matter went through with a single expression of opinion, if I remember correctly. Not being so familiar with conditions as they are in the United States, my remarks will necessarily apply only to Canada; but in many respects, no doubt, so far as the honey market is concerned, the conditions are much the same in both countries. If correct, the duty is 20 cents a gallon on honey coming into the United States, while in Canada it is 3 cents a pound; from the colonies and Britain, under the preferential clause, honey comes in at 2 cents a pound. It will thus be seen that bee-keepers in Canada are protected more than our friends over the line.

While there is a great diversity of opinion as to how the tariff should be arranged relative to many kinds of products, I have yet to meet the first Canadian bee-keeper who would be in favor of abolishing the duty on honey coming into Canada. Not so many years ago it was quite common to hear the opinion expressed that foreign honey would never come into serious competition with our Canadian product; but very few are now laboring under such erroneous ideas.

I am personally acquainted with the manager of one of the largest baking concerns in Canada, and only a few years ago he thought that clover honey was the only kind they could use in the business; but he now finds that logwood honey will answer the purpose, although he much prefers the Canadian product to such an extent that he will pay a cent a pound more for the clover than for the logwood. This is probably the case with many more manufacturers, and the trouble is that this West India product can be laid down in Canada so cheap—even after paying the 2 cents a pound duty, that producers of clover honey can not compete with it. No doubt many bee-keepers would be surprised if they knew what an enormous amount of honey is used annually by the manufacturers; and, while I can not give the figures, from what I have learned by inquiry I would hazard the guess that half of the honey consumed in Canada is used in that way.

During the past few years many thousands of the darker grades of foreign honey have been imported into Canada, as well as the comparatively light-colored logwood honey already mentioned. Much of this dark honey has come in under very suspicious circumstances, and it was the subject of considerable discussion at the recent convention of the Ontario Association held in Toronto. Great quantities of this honey have been shipped from England, and in some cases laid down here as low as 5 cents a pound. As Great Britain produces no honey for export—particularly at that price, it is only fair to assume that this honey was first sent into a free port of entry and then reshipped as a British product in order to get the benefit of the preferential tariff. That this honey can be hauled half way around the world, and then sold so cheaply, simply emphasizes the fact that northern producers can not compete with this southern product if it is allowed to come in duty free. You speak, Mr. Editor, of the resolution calling for an *increase* in the tariff; but if my memory serves me correctly, it simply asked that the present duty be maintained.* So far as Canada is concerned, negotiations are constantly going on with the British West Indies, seeking to arrange for reciprocity in certain lines of products, and there is great danger that honey might at any time be put on this list. If this were done, it requires no argument to say what it would mean to the Canadian producer. I am well aware that there are many who claim that the golden rule is not being observed when we advocate protection; and this may be true in a certain sense. I am at heart a universal free-trader; yet I realize plainly that this ideal is not possible at present, and I must content myself with advocating what I believe to be the best thing under existing conditions.

Dr. Phillips advocated increased protection on foreign honey, on the ground of there being great danger of introducing foul brood, it being generally understood that the countries from which most of the foreign honey is imported have a great deal of this disease among their bees. While there may be something in this contention, I do not see that there is so much danger along this line, as it is a very well-known fact that in the United States and Canada considerable foul-broody honey finds its way to manufacturers every year. That there is a certain amount of danger in the handling of foul-broody honey, no one will dispute; but the point I wish to make clear is that there is no more danger in the foreign than there is in our own, i. e., speaking in a general way.

As to a duty on beeswax, I am not so sure as to the benefits that would accrue from the same. As has been pointed out, it would raise the price

*The language of the resolution reads that the "present tariff of 20 cents per gallon on honey be retained, and, if possible, that it be increased." The same language was used in the resolutions for Canada, except that the amount (20 cents) was left out. —ED.]

of foundation in proportion to the increased duty, and this would hit the comb honey producer who gets but little wax. While the extracted-honey producer would get more for his wax, it is doubtful if the difference would more than offset the increased expenditure of the comb-honey man. Again, the use of bee-wax is increasing by leaps and bounds, and there is just a danger that any great advance in price at the present time would have a tendency to drive the manufacturers and other users of beeswax to find a substitute to take its place.

So far as beeswax is concerned, judging from the increased demand for this article, duty or no duty, the price is bound to be firm, and probably higher in the future than it has been in the past. Hardly a week goes past without a letter asking for quotations on pure beeswax, with generally something added like this—"we find the need of this article more every year in our business." Only a few days ago a firm of foundry men asked me for quotations on a thousand pounds of beeswax—an order I could not begin to fill.

I am well aware that this matter of the tariff on honey has been touched on in only a superficial manner; but if it is the means of helping to bring out a full discussion on this important subject, my object will have been accomplished. I have been wondering why it is that, with the exception of a single non-committal hint by Dr. Miller, not a reference has been made by any correspondent of the different bee journals to the matter of the tariff resolution under discussion. It certainly is an important question, and worthy of careful consideration. Like all other questions it has two sides, and perhaps with the writer it may be a case of "fools rushing in where angels fear to tread;" but we will cheerfully accept the reward of our folly if we succeed in goading some one to apply the lash.

Mount Joy, Ont., Can.

[While we should like to see this question discussed, and invited such discussion, our position is such that we think best to refrain from taking any sides. It is, indeed, an important subject, and, like yourself, we are surprised that no one, until you did, really argued the matter.——ED.]

BEE-KEEPING IN CALIFORNIA.

BY M. H. MENDLESON.

POSITION OF THE UNCAPPING-BOX.

In the Nov. 15th issue, p. 1376, I noticed the view of an extracting-room where the uncapping-box stood at the left of the extractor. In this part of the country we have our uncapping-boxes at the right, for the reason that a comb of honey to be uncapped is generally in the left hand, so that the knife may be held in the right hand; and when the comb is uncapped it is then close to the extractor, so that it is not necessary to change it into the right hand.

WIRING OF FRAMES.

I can not quite understand why any one should prefer vertical wiring. Whenever I wire frames vertically, the top and bottom bars sag; but when I wire horizontally, and the foundation is imbedded by electricity, I have no bad sagging, and in most frames there is no sagging at all. One should be careful to fasten the foundation to the top-bar, and imbed the wires to the center of the septum. I have found that imbedding by electricity is the only satisfactory method, as the cell walls are sure to melt, and then close behind the wire, leaving the wire permanently imbedded in the septum. I always have perfect combs in this way. The first and main cost is learning to do the work, which means, of course, the loss of a few sheets of foundation. Some say that the expense consists in the furnishing of a proper battery, but I believe that this can be overcome.

HOT VS. COLD KNIVES.

There are various conditions to consider when discussing the uncapping of honey; for instance, the temperature and body of the honey, the knife, and the operator. During my first experience in extracting, many of the combs had a rolling, uneven surface. I prefer to cut straight and even, however, so that the combs will be in good condition the next time. It does not pay to follow the bumps and hollows by "skinning" the cappings, as it takes too much time and labor. There is a good deal of difference between uncapping thick honey and thin or unripe honey. A hot knife will run through heavy-bodied honey almost as easily as through that which is only medium in body. I prefer to have my honey thick and ripe, and a cold knife would make slow and laborious work, and would mutilate the comb, wasting the wax and making extra work for the bees in fixing up the combs again. If the combs are left smooth and even, they will still be in that condition at the next extracting. The hot knife enables a good uncapper to cut off a whole slab of cappings at one sweep, saving the bother of slicing them off in small pieces. I can uncap over double the amount with a hot knife. I have proven this many times. With our peculiar flows of honey, a cold knife would be a loss to me, and I should not be able to keep up with the bees.

At the last extracting in each season I cut the combs down to brood thickness, so that a part of them may be used in the brood-chambers the following spring. I allow the queens free access in the supers, too, at first, in order to get a big force of bees for those good flows of honey; but in the second or third extracting I confine the queens to the first story by the use of queen-excluders.

SOURING OF HONEY.

I agree with Mr. T. P. Robinson, page 1374, Nov. 15, in regard to the souring of honey. Near the ocean I have seen honey ferment in hives containing strong colonies, and with only one super; but such instances have been shortly after the bean-flow and during a long penetrating foggy spell. The honey is ripe when capped over, but it draws the dampness from the air. I have noticed that bean honey seems to absorb water rather more easily than the sage. I have taken bean comb honey back to mountain apiaries to thicken, and then have brought back the thick, ropy, bean and sage honey to my customers on the coast, and the bean honey would invariably ferment sooner than the sage, when not hermetically sealed.

In good seasons, and away from the coast, sage honey, if of good body when taken from the hives, will remain in the liquid state for years; but if it is not thick at first it will candy. Even bean honey, if heavy in body, will remain in the liquid state for months; but if it is thin at first it will candy in a few weeks.

ABSORBENT CUSHIONS.

Here in California absorbents would be of benefit; for if a cover or cloth is lifted during December the under surface will be covered with great drops of water, and the combs will be wet. I have many times found combs affected by this dampness; and as I have five chaff hives on hand I intend to test the effect of proper absorbents and will report the results later. A limited upward ventilation leaves colonies in rather better condition here.

EXTRACTING-SUPERS GIVEN FIRST TO COMB-HONEY COLONIES.

Dr. Miller is right in what he says on p. 1441, Dec. 1. Several years ago he asked in GLEANINGS why it would not be well to put extracting-supers on comb-honey colonies at first to get the bees started above, and then, when the bees were well at work in them, to remove them and put on the sections. I wrote him at the time that this had been my practice for years. By this plan my light-amber honey is put into the extracted form, and the colonies are left in the proper condition for comb-honey supers, because the good forces of bees spread out more evenly over all the sections for the white-honey flow. Furthermore, by putting on all these extracting-supers of worker comb, the queen fills a part of these combs with brood, and this means that in the lower story the combs are filled with brood to the top-bars, so that the colonies are in much better condition to occupy the sections.

I often replace these extracting-supers with two 32-section Danzenbaker supers, and the bees occupy the whole, so that in three to five days I can add a third Danzenbaker super, putting it on next to the brood-chamber. I can continue this tiering-up as the colony requires the room, always putting the empty one next to the brood. In this way the sections are much more evenly filled out through the whole super. I put on the extra supers when the last ones given are about one-fourth to one-third drawn out, in order to avoid crowding the queen too much.

I have experimented extensively by raising the extracting-super first put on, placing the comb-honey super underneath; but I found this an expensive plan because it resulted in a loss of part of the crop. The trouble is that the bees cluster only in this extracting-super; and on this account I now remove the extracting-super entirely, and I give the extra brood which it contains to weaker colonies that are run for extracted honey.

There is another advantage in this plan of tiering before mentioned, and that is that the lower super of sections is never capped next to the brood; and this, of course, results in whiter cappings. The last super taken off must, of course, be capped next to the brood; but by this time the brood is crowded down so that the combs may contain sufficient stores for winter.

I do not allow bees to cluster out during the honey-flow except during times of excessive heat, as this idleness causes too much of a loss of surplus honey.

To get the most out of an apiary, the producer must know the condition of each individual colony. One can not always judge by outside appearances as to the strength; many times I have found a colony inactive, and with but few bees at the entrance; but the raising of the cover showed the hive boiling over with bees that were crowding out with honey. Such apparently inactive colonies are the ones that do the work too.

Our honey-flows require my constant attention to see that all colonies are properly supered. I could double my crops if I could attend personally to every individual colony in all my apiaries.

Ventura, Cal.

WHY NEW HONEY-CANS SHOULD BE WASHED.

How to Dry the Inside of a Five-gallon Can; a Reply to R. A. Burnett.

BY ALLEN LATHAM.

On page 29 the assertion is made by Mr. R. A. Burnett that "Water should never reach the inside of a tin package that is to contain honey . . . A can should be simply shaken, and any matter that may be loose in that way may be removed, and then the honey put in." May I ask Mr. Burnett how the dirt which is not loose is gotten rid of? Is tin plate so immaculately clean that it never needs washing? The men who make the tin cans may not be immaculately clean.

With all due respect for the judgment of Mr. Burnett in other matters, I think he is in serious error here. Let him or any one else who doubts me try this simple experiment: Select a new can which has never been washed. Pour boiling water into it and thoroughly rinse it. Pour this water out and note its turbidity. Try to make a suds in this water. Note its hardness. Mr. Burnett may like to eat honey from such a can, but not I.

These cans are made by men the vast majority of whom chew tobacco. These cans have all their seams wiped with a vile brush wet with a solution of zinc chloride (a poisonous salt). They are all made from tin which, though for the most part largely handled by machinery, is frequently touched by men with grimy hands—hands befouled with dirt distasteful to eye and taste. With all justice to these workers, does Mr. Burnett think that one of them would wash off the spot if he by chance spat tobacco juice upon the inner surface of a tin can, when that inner surface was only the side of a sheet of tin?

It is all nonsense, this idea that a tin can is not safely washed. Even if it were not dried, and were immediately filled with honey, no harm could come. If the honey were well ripened it would take care of a teaspoonful of clean water left in the can. But it is a simple matter to dry such a can.

Some seven years ago I moved from Massachusetts, and left some bees on the old place. I also left 14 five-gallon cans there to take care of the honey produced. The tenants complained about the bees, and I removed the same, leaving the cans till I should need them. These cans

were second-hand. I washed each thoroughly and left the caps off, storing the cans in an attic. Last year, six years after leaving the cans, I sent for the same. Each can was still as sweet and bright as a new can.

New cans should be rinsed with boiling water (I mean water that is actually boiling, bubbling with steam) at least twice. They should then be drained and left in a dry place with the caps off. They will be perfectly dry, without any rust, in a few hours. Or if they must be filled with honey immediately, most of the water can be shaken out and much expelled by drumming on the hot can. What little is left will be absorbed by the honey, or can be removed from within the outlet as it lies on top of the risen honey. Every can should be completely filled—not have 60 pounds put into it, but be filled till no air is left in the can. It is not good practice to leave an air-space above the honey in a can. If the honey is not sold before the next summer, that honey will be injured.

Mr. Burnett speaks of rusty cans from a bakery. Now, those cans had never been washed out. They may have been rinsed once, but they were left with thin honey in them. Thin honey is far worse than water in a can, and even thick honey will injure a can if there in small amounts. The reason is plain. The honey is hydroscopic, and attracts the moisture which is in the air within the can. Every drop of honey is thus helping to rust the tin about the edge of the drop. Only this late fall I had occasion to open up several cans which had been left for three or four years without washing. These cans were nearly ruined. About half a pound of honey was in each, and that honey had caused the rusting of pretty much the entire interior of those cans. In sharp contrast with these cans was one or perhaps two which had been well rinsed.

I may have expressed myself rather strongly in what I have said, but the case seems to demand it. Do not, I pray every reader of GLEANINGS, adopt the advice of Mr. Burnett. I should not like my honey served to me from an unwashed can, and I have found it an excellent plan in all my honey-selling to treat my customers as I should like to be treated.

Norwich, Conn.

[Sometimes honey will absorb water and sometimes not. Much depends upon the climate or room where the surface of the honey is exposed. In a furnace-heated house, if there be no water-pan used in the furnace, honey will become thicker—that is, evaporate. In a climate near a large body of water or elsewhere during a long rainy spell, honey will absorb water. In Mr. Latham's climate (next to the ocean) it would do precisely that; hence his advice to wash honey smearings off in his locality is sound.

But in most inland towns a coating of honey on the inside of a tin honey-extractor, for example, will do no harm. Indeed, we once heard Dr. Miller say he would rather have the honey on than off, as it would prevent rust.

In the matter of washing out new cans, we believe Mr. Latham is right. We are not sure that second-hand cans that had contained good honey would need washing if the caps were put back after emptying. We should be glad to hear from others, including Mr. Burnett.—ED.]

UNCAPPING A WHOLE FRAME AT ONE STROKE.

A Strong Plea for a Sharp Knife Without an Offset Handle.

BY W. A. CHRYSLER.

I think that any practical bee-keeper who has properly built extracting-combs and knife should be able to remove from his extracting-supers the combs of all sealed honey, uncap them, and set them to one side ready for extracting, at the rate of from 100 to 150 combs per hour; and, if done properly, there will be no need of even wiping off the knife during that time. But some may say, "If you had honey as thick as mine you couldn't do it." I might say that I believe I have as thick honey as the most of us; even the thick waxy alsike honey. I will admit that newly built combs, the first season, are slower and not so easily uncapped; but, even so, if the knife is properly constructed, and used in a certain way, there is no need of using a hot one.

One who has ever cut belt lacing with a jack-knife knows that some one must hold the end of the lacing tight, as well as the piece that is being cut. It would be utterly useless to try to cut it without holding the end of the lacing tight.

In the first place, according to my ideas a honey-knife should be long enough to take cappings from the whole of one side of the frame *at one stroke*. The blade of the knife should not be over 1½ inches wide at most, and I prefer a blade about one inch wide with but one cutting edge sharpened straight from back to edge. Both sides of the blade should be made as smooth as possible, and the edge should be *sharp*. One cutting edge to a honey-knife is all that is sufficient unless for the convenience of both right and left handed operators. The deflection in the handles of honey-knives of many that are on the market is overdone. If we are to uncap combs with one stroke of the knife on each side (and I think it is the proper way of uncapping) there is no need of a deflection of the handle. To uncap, set the bottom end on a point or swivel; lean the top end past the perpendicular; begin to uncap the overhanging side, and from the bottom end of the comb, drawing upward with a seesaw motion. As you proceed upward it cuts easier; and probably when about half way up you will find it unnecessary (owing to the weight of the overhanging capping) to seesaw; but just draw the knife straight up and the capping will drop in one sheet. Treat the other side of the comb in the same manner. The weight of the capping, pulling straight down, draws the capping from the top of the knife, and keeps the edge free to cut, similar to some one holding the belt lacing tight, as referred to. Wide-bladed, rusty, and bluntly ground knives, with deflected handles, only rend to teach the bee-keeper to uncap from the top side of the comb, and to educate him to be a putterer all his days, especially at that work.

Chatham, Ont., Dec. 28.

[Mr. Chrysler has made a good argument for a straight, sharp, cold blade. This is getting to be interesting, as it begins to appear that *perhaps* we have been working in old ruts. This is an important subject. Let's hear from others.—ED.]

FIRST MEETING OF THE MARYLAND STATE BEE-KEEPERS' ASSOCIATION.

FIRST MEETING OF THE MARYLAND BEE-KEEPERS.

BY THOMAS B. SYMONS,
State Entomologist.

About one hundred enthusiastic bee-keepers assembled in the Fifth Regiment Armory, Baltimore, Dec. 3, 1908, in response to a call of the State Entomologist, to form a State bee-keepers' association. Dr. J. Aikenhead, of Easton, Md., was elected temporary chairman, and Prof. T. B. Symons, of College Park, Md., acted as temporary secretary. The program, which had been previously arranged, was then carried out.

A representative from each of the thirteen counties represented at the meeting was appointed on the Committee on Permanent Organization. This committee met and considered the constitution and bylaws, which was presented and adopted by the general meeting in the afternoon.

Thus a permanent organization was effected to promote scientific and practical bee culture in Maryland.

The permanent officers for the ensuing year were elected: President, Dr. J. Aikenhead, Easton, Md.; Vice-president, H. S. Krumbine, Gilpin; Secretary-treasurer, Prof. T. B. Symons, College Park, Md.

The following vice-presidents from the counties were elected: Allegany, H. S. Krumbine; Anne Arundel, Miss Marry A. Hildreth; Baltimore, W. B. Atkinson; Calvert, C. Orville Drury; Caroline, D. L. Patchett; Carroll, W. C. McCardell; Cecil, M. C. Reeder; Charles, Wm. R. Clark; Dorchester, John Thompson; Frederick, C. Bear; Garrett, J. E. Conneway; Harford, W. H. Rawhouser; Howard, Chas. Lemmon: Kent, E. H. Strong; Montgomery, N. H. Saunders; Prince George, D. H. Hopkins; Queen Anne, Mrs. W. Irving Walker; Somerset, A. B. Twining; Talbot, Dr. J. Aikenhead; Washington, Chas. E. Virts; Wicomico, Ernest A. Hearn; Worcester, John H. Gibbs.

The meeting was a success from every standpoint. The members present took part in the discussion of the subjects on the program.

The need of a bee-keepers' association in Maryland was emphasized by Prof. T. B. Symons, State Entomologist.

In his remarks he draw attention to the great need of co-operation among bee-keepers in the work throughout the State in order that the industry may be promoted. He said that no State presents more favorable conditions for bee-keeping than Maryland, but that organization is necessary in order to secure legislation for the promotion of this neglected industry in the State.

Dr. E. F. Phillips, of the Bureau of Entomology, U. S. Department of Agriculture, discussed the present status of apiculture in the United States. This very able paper is published in full in a bulletin of the Department of Agriculture, which can be had for the asking.

The discussions of the various questions on the program occupied the remaining time of the morning session. A large number of the bee-keepers present took part in the discussions, which brought many points of interest to all present.

At the afternoon session, Dr. G. F. White made an interesting and instructive address on "How to Detect and Control Bee Diseases." He fully explained the methods of detecting American and European foul brood, also pickle brood, and stated the best means of control known.

Mr. E. R. Root, not being able to be present, was represented by Mr. Wm. A. Selser, of Philadelphia, who made a very practical address on "The Handling of Bees."

After a full discussion of the questions on the program for the afternoon the meeting adjourned.

F. W. REDFIELD'S HOUSE MADE OF HONEY FOR EXHIBITION PURPOSES.
All cans, etc., used in this exhibit were filled, except those used to make the roof.

All the bee-keepers attending expressed themselves as being much pleased with the meeting, and offered their support to the organization.

A fine exhibit of honey was made in connection with the meeting, consisting of comb honey, extracted honey, live bees, and bee-keepers' apparatus.

A REAL HONEY-HOUSE.

An Attractive Exhibit for a Fair.

BY F. W. REDFIELD.

At our last fair we had an exhibit showing a house made of honey. All packages used were full of honey except those composing the roof, where empty cans were used on account of the weight. The construction of the walls is apparent from a glance at the picture. The framework rested on the top comb-honey cases of each wall, no support whatever being used inside the house to hold it in place. It was held firmly in place by cross-pieces bracing the roof from one side to the other. The roof consisted first of three pieces of 2×4, 12 feet long, one being used at the top of the gable, and one each at the lower slope of the roof, the bracing being done by cross-pieces between the latter two. Strips one inch square were used to hold the cans in place, extending from the top to the bottom of each slope, 33 being required on each slope of the roof. The sides of the house were prevented from sliding apart by the roof, it being constructed in such a manner as to hold them firmly in place.

While the crop this year was not quite as good as was expected, still it turned out fairly well. The local market had been in a very firm condition for several months prior to the new crop of honey, and ruling prices were such that the producers of this locality, Weber Co. in particular, realized top prices for their 1908 crop, the demand being very steady. There are always, however, a few bee-keepers who are determined to undersell their competitors, hoping by so doing to close out their own crops of honey much more speedily than otherwise. If they would stop only a moment to consider what they are doing, and the effect it has on their own local market, they would very likely market their honey along with that of their fellow bee-keepers at existing general prices. Not only would they realize more out of their 1908 crop, but they would be in position to receive a good figure for their 1909 crop also, on account of the established prices of the season of 1908. There is no necessity whatever for the cutting of prices by a few bee-keepers, for in so doing they slaughter the condition of their market and pave the way for lower prices the follow-

ing year. If honey must be sold at a reduction, then why not to outside States to the large dealers, rather than to the leading merchants of the home town?

Ogden, Utah, Dec. 26.

AN ANT-PROOF BUILDING IN HAWAII.

BY D. L. VAN DINE.

I send herewith a photograph of a house we have at the Hawaii Agricultural Experiment Station for insect-breeding work—an insectary, as it is called. It occurred to me that this might be of interest to the readers of GLEANINGS—at least to those in the tropics—in connection with the article on "Keeping Ants out of Honey-houses in Warm Localities," on p. 1444. The house (Fig. 1) rests on sewer-pipe imbedded in cement in ordinary earthern washbowls, the bowls in turn being imbedded in concrete. The bowls are, of course, kept filled with water. The steps to the house are detached, and at a distance away of about six inches. The structure is wholly ant-proof. The remaining precaution taken is to keep the grass cut beneath and around the building. The small view at the left shows detailed construction of the posts.

Honolulu, Hawaii, Dec. 15.

FOOT-POWER HONEY-EXTRACTOR WANTED.

BY R. H. YEARNSHAW.

I extract alone, uncapping and running the extractor at the same time, and I can keep the extractor spinning while uncapping, if I have it well oiled and adjusted; but I should like to get an arrangement to run it by foot-power. For instance, I would have a treadle hinged at one end to the floor, and a rope or chain at the other end, running over a ratchet arrangement on the shaft of the extractor.

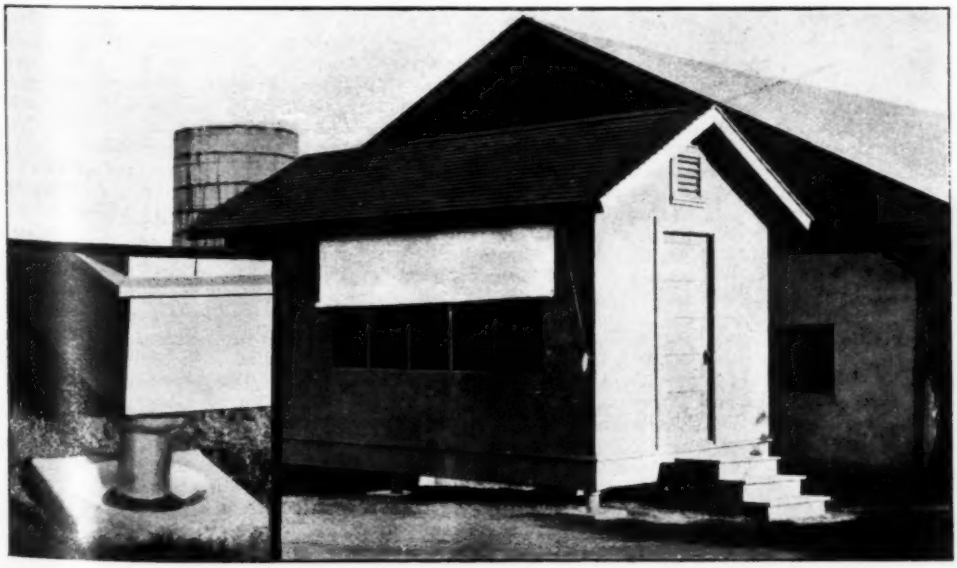
Uncapping-knives should be made with a longer bevel so they can be sharpened more easily. The last knife I bought took me two or three hours of hard grinding to get in shape—as much as a new knife is worth in labor. The handle should be larger, and oval, or oblong with round corners. I nailed a small piece on the handle of the last knife I bought, to give me a good grip.

SAN FRANCISCO MARKET REPORTS TOO HIGH.

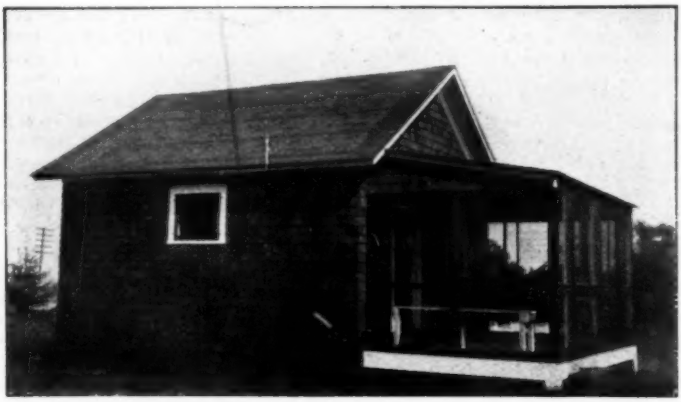
I do not send any honey to San Francisco any more, having a good home market; but I never was able to get the prices quoted in the market reports when I did send honey there. The wholesalers, in their market report to the retailers, quote fancy Nevada honey at 15 cts., and it is fine honey too. They are not in the business for their health, of course, so the producer does not get that much. They used to pay me 3 to 4 cts. per lb. less than the price they quoted to the retailer, five years or so ago. I think it is part of a plan to help "boost" the reconstruction of San Francisco to quote high prices on produce, so more will be shipped there, and they will regain the trade lost immediately after the quake and fire. Every bee-keeper I have talked with has voiced similar sentiments.

Stonyford, Cal.

[We are not so sure but you have struck on an idea that is worth developing. While there is no doubt that a suitable foot-power could drive a two-frame honey-extractor, the difficulty, apparently, lies in the fact that one must have the use of his feet to get at the combs in the different supers for the purpose of uncapping and extracting. A boy, however, might bring the frames; and while the operator is pedaling he might do the



A BUILDING FOR INSECT BREEDING WORK THAT IS ANT-PROOF, IN HONOLULU.



SUMMER HOME OF A CHICAGO NEWSPAPER MAN, BUILT NEAR HIS BEE-YARD.

uncapping. But if one is to do all his own work, we do not see how it would be possible for him to do very much foot-power work unless he can devise some scheme by which the combs would come to him without having to arise from a sitting position. It is true he could have a ratchet and a single foot-lever, and stand up; but just imagine one trying to uncap a comb while standing on one leg and pedaling with the other!

We have many ingenious mechanics among our force of readers, and we should be glad to receive photos of devices from any one who has worked out any scheme of this sort.—ED.]

A NEWSPAPER EDITOR'S EXPERIENCE.

Bees Cheaper than Doctors; Eight versus Ten Frame Hives.

BY FRED HAXTON.

Bee-keeping is a tonic for tired nerves—better than all the doctors in Christendom. This I have proved by one summer's work in the apiary. By the way, gentle reader, have you noticed what a tremendous grip bee culture takes on its devotees? It might almost be said, "Once a bee-keeper, always a bee-keeper," as it is now proclaimed, "Once a telegrapher, always a telegrapher," and "once an editor, never any thing else," by members of those crafts. A newspaper man and an apiarist I am, and such I will remain.

In boyhood days I took joy in fourteen colonies of cross hybrids, and they appeared to take equal pleasure in the encounter. College and city life took me from my pets, and it was nine years before I could return to them. Then work as telegraph editor of an evening paper was shattering nerves, and life in a flat had become unendurable to a country-bred man, so I set about searching for a place to keep bees. One that met the requirements was hard to find, as it must be close enough to Chicago to have good transportation facilities, and still be in good pasturage. At last an ideal location was secured sixteen miles out, in the midst of an abundance of white clover and basswood, and with a good fall flow from asters and goldenrod.

An acre of land was secured, and ten-frame Dovetailed hives obtained, as a test of these with eight-frame hives side by side had shown that the colonies in the former produced more honey, wintered better, and never needed feeding. Arrangements were made with a man five miles away to fill the hives at swarming time with pure Italians.

As another side remark, a common interest in apiculture promotes friendships more quickly than brotherhood in lodges.

The year 1907 was extremely bad in this vicinity, both clover and linden failing, and the swarms coming extremely late. They wintered poorly too; but now I have 26 colonies in prime condition, tucked away in packing-cases. All were moved to my lot in the spring of 1908, and then I built a cottage so as to be with them. There, from May 1 to Oct. 1, I fairly lived with the bees, and was happy every moment. Nearly all the combs were built from full sheets of foundation, in Hoffman metal-spaced frames, and it was a pleasure to handle them. Half a dozen hives had the ordinary Hoffman frames, and nothing could induce me to give up the improvement.

The apiary was reached at 4 o'clock every afternoon, and then the "fussing with bees" (for an extensive apiarist could call it nothing else) began. There were queens to raise, increase to be made, sections and supers to be prepared, and honey to be taken off, furnishing amusement and work for the entire season. As an example of what can be done with increase in a favorable year, each frame of a ten-frame hive that had swarmed was made a nucleus, with a queen-cell for each The mother was one of the best in the yard, and the frames were chock full of brood. All ten built up quickly, without assistance other than the frames of empty comb for each, and two of them in September were filling second stories. Seven of the queens became purely mated, although black bees abound in the neighborhood.

The honey crop?—well, it was not as good as Dr. Miller's, but the best colony brought in $22, with honey at 20 cents a section. All the surplus was sold, with little solicitation, among the 150 employees of the newspaper, many of whom had been "joshing" the "bee-farmer." One man bought 35 pounds; but as his family consists of only his wife, I can't figure out what he did with it.

The work among the bees and in a garden had added eighteen pounds to my weight, kept me as happy as a lark, made the work at the office much easier, and had increased the distaste for life in a flat. The venture was something of an experiment, but was so successful that next sum-

HIVE-STANDS MADE OF RAILS.

mer the flat will be abandoned, not to be seen again until October.

Bee-keeping as a tonic has cost me $1500, but it is worth it. The bulk of this ($1000) went for the lot, $275 for the cottage, and the rest for bees and appliances. As the interest on the investment would be about $7.50 a month, it is cheaper than doctors' bills.

Chicago, Ill.

[The great majority of those who keep bees take up the business as an avocation, as our correspondent has done. While they are not all newspaper men, of course, they are made up of our best class of professional men and farmers. See page 138.

We hope Mr. Haxton will use the opportunity that he has (if he has not already done so) to correct the general impression that comb honey is manufactured. This old canard bobs up every now and then, and our bee-keepers among the newspaper men can do much to restore confidence in our product.—ED.]

ELEVEN YEARS' PROFITABLE EXPERIENCE WITH BEES.

Shade vs. No Shade.

BY WALTER GARABRANT.

Though I had bees before, my books show that I have been keeping account with them for eleven years, or since 1898. So far as I can recall, they have always balanced the account on the profit side, though the margin was rather small several times. Since they are a side issue with me, and I was away at normal, and teaching for five years, there might be some excuse for a deficit.

I had 1200 lbs. of honey one season. Probably the average has been 500. This season I had thirteen or fourteen colonies, spring count. Counting every thing, I have had over 875 lbs. of honey, about 300 of which was extracted. I have increased to 21 from my own colonies, besides losing two swarms that I knew of, and possibly more. The gross returns were $166 from the 850 lbs. sold. As somewhat of a drawback I have been combating foul brood the last two years.

I have a retail trade for the bulk of my crop, though I could sell much more, both wholesale and retail. In fact, I have sold 14 cases belonging to one of my friends.

SWEET CLOVER TO FLAVOR OTHER WHITE HONEY.

I am near the central part of Morris Co. I think there must be something in the white-honey-flow here different from that of some sections. A number of my customers who travel to some extent have told me that the quality and flavor were better than they could obtain elsewhere. The only thing that I know to account for it is the abundant flow of sumac that we generally have to finish the clover I like the blend better than any thing else, and it agrees with an article I read in GLEANINGS last year. It may be the absence of basswood, as I know of none of any account within reach. The yellow sweet clover is spreading, and I do not know what effect it will have on the flavor, though I know it lengthens the flow and the flavor is good. I think I had more aster honey (surplus) this fall than in all my past seasons put together.

I have read with interest the many opinions about shade for hives. My experience here is that there is more profit in the long run with *no* shade. I don't dispute the fact that a shade-board for the front of the hive on a hot day is good, nor that, if we could have a portable tree or some shrubbery to roll into place for a few hours, it would be of advantage for the time. Chance has always made it so that I have generally had a hive or two in the shade, more or less, and I do not recall ever making any profit from them.

The illustration shows my apiary as it was last summer, or part of it. Some were in another place. A building protects it on the north and also on the east. The colonies are not in the order I should like, owing to the tree, uneven ground, etc.

I have found the stands shown very practical. They are made of any odds and ends. Good stout rails make serviceable supports, but they must be well braced.

Chester, N. J., Jan. 4.

[You say that yellow sweet clover is becoming quite plentiful in your locality. It is this, probably, that gives your white clover that quality that is so much prized by your customers. A little sweet clover in any white honey gives it a flavor that is delicious. We doubt if sumac would do this.—ED.]

CURING FOUL BROOD AND PRODUCING HONEY AT THE SAME TIME.

Atwater's Method of Rendering Wax from Foul-broody Hives in a Home-made Steam-press.

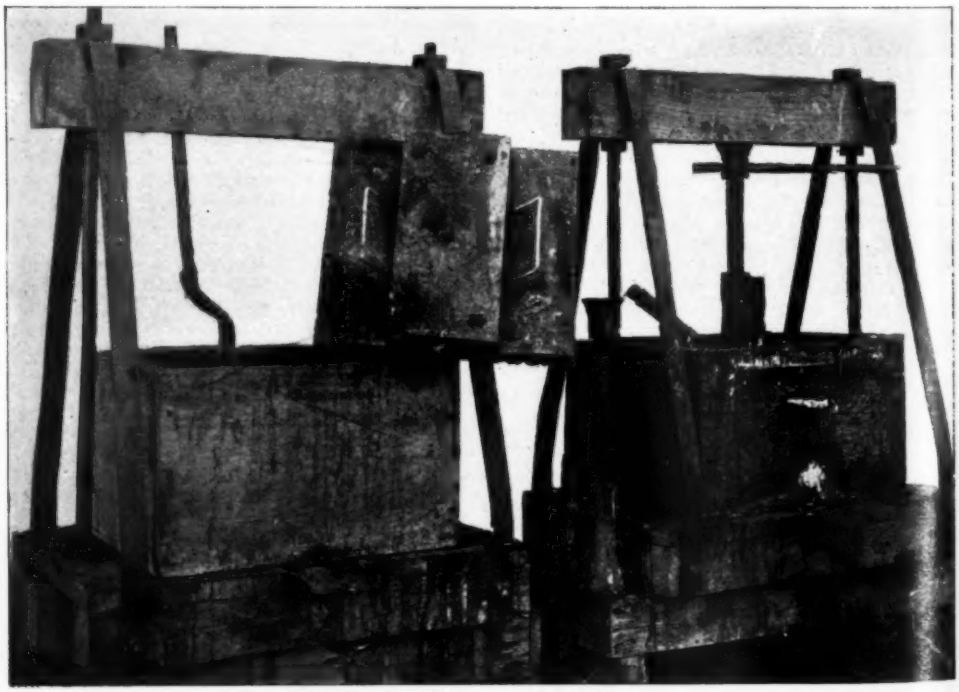
BY E. F. ATWATER.

As foul brood and wax-rendering have been so closely related in our work for some years past, I will consider them together. It will be my aim to write of the actual methods which we have found profitable and expeditious.

Last April, in inspecting our McDonald yard of 140 colonies, we found perhaps half of them affected with foul brood. With a view to circumvent robbers while working with the bees, we at once constructed a tent to use in our work at this yard. When the flow arrived, early in June, with three helpers I went to this yard, and in about twelve hours we shook almost every colony into a clean hive, supplied with wired frames and full sheets of foundation, and clipped every queen to prevent absconding. About 25 of the weaker colonies were taken a few rods away, to the north part of the yard, all their queens caged, and the brood from the shaken colonies was piled up on them to hatch, and all entrances well contracted. When shaking, all combs with little or no brood were put in hive-bodies, and stacked up bee-tight in the shop. Then in ten days to three weeks, as we had time, we shook the stacked-up colonies at the north end of the yard.

The hives of old combs made several wagon-loads, which, during the night, were hauled home and carefully piled up, and made bee and mouse tight in the shop. The wagonbed was then washed out with a strong carbolic-acid solution, so as to avoid any chance of the bees at home, or at any of the other yards, getting a taste of honey that might be diseased.

As some colonies were weak at the time of shaking, we made only 100 good colonies from the original 140. As we wished honey rather than bees from this yard, we preferred to make our increase at other yards which are free from disease. When fall came, the bees were again inspected and all found clean except seven colonies, which, as bees are cheap here, were sulphured and hauled home. The 93 colonies gave as large a crop per colony as was taken from yards not diseased.



ATWATER'S HOME-MADE STEAM WAX-PRESS.

In October we collected our comb-waste from all the yards, and prepared for wax-rendering. First, our small one-horse-power steam-boiler was moved to within ten feet of the shop. A half-inch pipe was run from the boiler into the shop, where it met another half-inch pipe, perhaps 12 feet long. Leading downward from this long pipe, at intervals of perhaps 3 to 5 feet, were short pieces of the same size of pipe, each supplied with a good valve. From two of these a short piece of steam-hose led to another piece of the same size of pipe, perhaps four feet long. We would take 8 to 12 or more combs, thrust a pointed rod through them at the lower corners, and suspend them in a barrel, covering with a piece of heavy cloth. One of the pipes with steam-hose connection was put into the barrel, and steam turned on. When these combs were melting, another barrel was being loaded in the same way. The number of barrels that can be kept running depends only on the amount of steam that is available.

INTERIOR OF ATWATER'S STEAM-PRESS.

From the other pipes, short pieces of steam-hose led to the L pipes which heated the presses, as shown in the cut. As some details of these presses are different from those that have been described, I will briefly specify, so that any one may construct similar presses.

Cross-beams at top and bottom, hard wood, 4×6, on edge; screws, 1¼-inch jack-screws; upright irons, ⅞-inch, steel rods; brace-irons, ⅜×1¼; steel bands, bolted to 4×4's at front and rear, and flattened where passing over the 4×6 at top, with $1\frac{5}{16}$-inch holes through which pass upper ends of the ⅞-inch rods, with heavy nuts on top. The foundations are simply high hive-stands built to hold two hives. The box is of 1¼-inch lumber, put together with halved joints, with galvanized-iron bottom, all joints put together with white lead. In the illustration of the single press, the slatted rack may be seen in the bottom of the box. To the sides are nailed strips ⅜×⅜×9, ¾ inch apart.

In the view of the two presses, one follower is shown, standing on the box. It is composed of a 16×16×2-inch plank, hard wood, cross-cleated with the same material, 2×8×16, bolted with $\frac{5}{16}$ bolts, and a handle of $\frac{5}{16}$ rod provided as shown.

The other side of this follower is shown in the lower part of the view of the single press. At the rear of each box or pan is an L-shaped pipe which enters at the middle of the lower back side. This has a short piece of hose for attaching to the steam-pipes. The slotted rack in the bottom of the box is notched on its lower side so as to permit the steam to circulate freely.

Now we can return to our barrels of melting comb. We find that most of the comb has disappeared from the frames, or has settled in the lower corners of the frames. We shake it loose from each frame, scrape a little with an old case-knife, and replace the frame in the hive. You see that the wires are not broken or cut, only a little stretched, so after another scalding they are ready for filling with foundation again. When a barrel is half full of melted comb we prepare to fill the presses. We put a piece of burlap, perhaps 4 feet square, into the press, turn on the steam to heat the press, and after a moment we

dip up 4 gallons of the melted comb, and put it into the press, fold over the burlap, put on the follower, turn off most of the steam, and apply the pressure; then fill the other press, gradually increasing the pressure, giving plenty of time, as we are melting combs all the time, and the steam is keeping the "cheese" hot. We keep just enough steam going into the presses to keep all hot, and the wax "on the move" from the outlet in the front of the press. From this outlet it passes through an Aikin separating pail, shown on p. 1314, Nov. 1 (kept hot on a small oil-stove, or with steam), which runs all the wax into pails at one side, and the water into other pails on the other side. You may note that one of the presses has an outlet near the top of the box. This upper opening was used in our tests of the hot-water method of pressing. As we got little if any more wax by the use of the hot water, we are now using the steam alone.

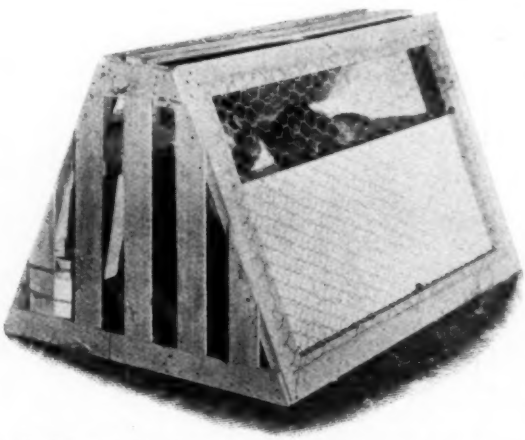
We get about 75 pounds of wax from 25 eight-frame hives, so we think that we get about all the wax that we can afford to get, at present prices of fuel and labor. We find that the plan of running steam into the press is quite a help; then if you wish to use these presses as hot-water presses you can loosen the screw, turn on the steam, which shakes up the cheese of slumgum in a very effective manner, causing it to absorb a maximum of really hot water. Then when pressure is again applied, the wax is again washed out, as described by Cary so many years ago The plan of using two presses is very much better than to use but one, as two can be worked about as easily as one, and there is less need to hurry the work. As fast as we got 50 hives free from comb, they were taken out and scalded in boiling lye-water, when they were again ready for use.

Meridian, Idaho, Jan. 4.

[If you had not said that you got little if any more wax when you used the hot-water plan we should have thought at once that you could do cleaner work by closing the outlet at the bottom of your press-boxes, thus allowing the refuse to be surrounded by hot water. However, we assume that you took out the screw and follower after one pressing, thoroughly mixed up the contents of the burlap, and pressed again. In any system of rendering wax we believe that it is generally conceded to be a fact that no amount of pressure will force out all the wax at one time. The refuse must be heated or soaked up again, and the pressure applied the second, or, in some cases, even the third time.

We have lately been using the Hatch press on the plan advocated by Mr. W. J. Manley, page 1313, November 1, 1908; and at this time it seems likely that somewhat cleaner work can be done than by the regular plan of allowing the wax and water to run out and away from the refuse as fast as possible. The principal advantage of the Manley plan, so far as we can see, is that it does away with the necessity of lifting out the cheese and shaking it up before pressing it the second time; for by merely releasing the pressure the water that is still hot thoroughly soaks up the cheese. We have demonstrated, to our own satisfaction at least, that it does not pay when using this plan to press more than one cheese at a time. In the Hershiser press, on the other hand, where the water can be kept constantly near the boiling-point for two or three hours, more than one lot of refuse can be pressed out at a time, since the alternate pressing and soaking can go on indefinitely until no more wax will come out.

You say that you get little if any more wax when using the hot water. In our experience it takes no longer to close the lower outlet and allow the water to accumulate in the boxes so that it surrounds the refuse than to allow the wax to run off below; and so if even a small percentage more of wax were secured by that plan it would seem that it would be wise to follow it.—ED.]



CRATE FOR SHIPPING FOWLS; LIGHT, STRONG, AND COMFORTABLE.
Made by our apiarist, Mr. Bain. See Poultry Department.

IS BEE-KEEPING ALONE PROFITABLE AS A BUSINESS?

BY GEO. W. YONT.

In the *American Bee Journal* for October, 1908, p. 310, in an article entitled "Specialty vs. Amateur Bee-keeping," copied from the *American Bee-keeper*, I notice the following statement:

It has been my pleasure to be associated with some of the most extensive producers of honey, and to have the management of some of the largest apiaries in the United States, numbering their colonies by thousands, and to note by experience the conditions and possibilities on all sides of the United States from the Atlantic to the Pacific, and from Canada to Cuba, during all of which time I have been intensely interested in apiculture as a pursuit. During that period I have not met a dozen men who have amassed a competency through the culture of bees alone. Therefore, as a last word to those who contemplate embarking in bee-keeping as a money-making venture, I desire to go on record as advising against it.

I desire to ask, "Is bee-keeping a precarious and unreliable pursuit? Is it possible for only a very few, and those only persons peculiarly situated in favorable localities, to earn a livelihood at it? How does it compare in profits, followed as a specialty with other rural pursuits?" I have been led to believe from past reading that a good

living and something over might be expected by a progressive bee-keeper.

In "Quinby's New Bee-keeping" I find this statement: "A comparison of bee-keeping with other avocations (farming, for instance) will, I think, show a balance of profit in favor of the former."

Why is bee-keeping called an avocation? Is it not a pursuit of sufficient reliability to give it the rank of a vocation? It appears to me that, if bee-keeping is nothing more than an amateur pursuit, few men who have a living to earn, or who wish to secure a competence, would care to follow it. And, again, that being the case it seems strange that agricultural institutions, State and Federal, and experiment stations, devote so much attention to it.

Dairymen claim that the margin of profit in their business, or, in other words, the balance of profit of loss in their business, lies along a narrow ledge. Will not bee-keeping compare favorably with dairying, with less capital involved and less hard labor?

Osterburg, Pa., Jan. 15.

[There is much of truth in what is stated in the quotation from the *American Bee-keeper*; but just as it stands it needs material qualification.

We do not believe that we are boasting or misstating the facts when we say that we have traveled more miles over the United States in visiting bee-keepers than any other person. One trip alone aggregated 7000 miles. On these various long and short trips we have seen almost every important honey-producing section in the country. There are some portions remote from railroad lines that we have not seen.

After having gone over this country in this manner we are prepared to say that it is *not true* that there are but comparatively few persons who have amassed a competency in bees alone. The correspondent of the *American Bee-keeper* could not have gone over the country very extensively or he would not have left us to infer that the number of those who have amassed a competency in the business could be comprised within a dozen. He does not say this exactly, but he leads us to believe that he has traveled all over the country, and in all this travel he has "not met a dozen" who have made a living from bees. We venture to say we can point out over a hundred, some of whom produce honey by the carload.

But, on the other hand, it is emphatically true that the number who make bee-keeping a business or profession is very, very small in comparison with those who take up bees as an avocation. The ratio might almost stand as one to five thousand. By "avocation" we mean just what the term implies—one who takes up bee-keeping as a side issue for either business or pleasure, in connection with his regular occupation or vocation.

But bee-keeping is not unlike the keeping of chickens. The number who depend on poultry as a sole means of livelihood, in comparison with the number who produce a few eggs, is very small indeed. The great majority of people are not so situated as to keep chickens on a large scale even if they were competent to do so. Practically the same thing may be said of bees. It is no disparagement to either industry to say that there are few professionals, comparatively, in the ranks.

So far as bee-keeping is concerned, most localities will not support more than a comparatively few colonies—say forty or fifty. Where clover is the sole means of dependence we usually advise one not to depend on bees as a sole means of livelihood. But, notwithstanding, there are some who make a good living in such localities; but these people run an elaborate system of out-apiaries. While they work hard during the rush of the season they have much leisure at other times of the year for other business or for the development of the mind and body.

Many localities are extraordinarily good some years and very poor in others. One who has all his eggs in one basket (bee-keeping alone) is likely to have hard work in tiding over the poor years.

But bee-keeping in a small way, we say without fear of successful contradiction, is one of the most profitable side lines that one can engage in. Just the other day a farmer told us that, for the time and money invested, no other department in his farmwork paid anywhere near as well as the bees. When we suggested that he keep more, he stated that more could not be kept on his farm; therefore he was content to practice mixed farming and bee-keeping, and he was making a nice business. There are something like half a million of that class of bee-keepers in the United States alone; and they give character to the industry as a whole, especially if they belong to the professional class, the men who take up law, the ministry, teaching, book-keeping, or other office work.

It is emphatically not true that bee-keeping is a mere amateur pursuit. While amateurs may keep bees, the great majority of them do so because there is money as well as pleasure in them.

The bee-keeping industry is becoming so important throughout the United States that more and more the agricultural stations are putting in a department of bee-keeping; and the fact that our dear old Uncle Sam has a corps of trained bee-keeping specialists at his apicultural work and investigation is only another index of the high standing our profession has with the people. —ED.]

FORCED TO ADOPT THE SECTIONAL HIVE.

Every Part of a Super Worked on Uniformly; Where to Put the Bait Sections.

BY C. B. PALMER.

On page 1443, Dec. 1, you ask if any one has observed the same conditions as Dr. Miller, in regard to sections all being started at once. I for one have, and I heartily agree with him when he says it is the prettiest sight in a super he has ever seen. The glistening, sparkling, even construction is a sight never to be forgotten. The first time I ever saw it was about six years ago; but it was not caused by putting an empty super under one partly completed. I had five or six colonies in deep-frame hives similar to Langstroth in size. I had been bothered to get the bees into the supers, as they seemed to have too much room to

fill below, and started their surplus in the ends and in the upper parts of the brood-frames Had a man told me then that I was going to make a change from a deep to a shallow frame (less than six inches deep) I should have told him that all the argument he could bring to bear would never cause me to change.

I felt that, if I were to break up this mass of brood and honey, I must break the hive into sections. I had never seen a sectional hive, but I at once began to look for one, and I ordered five sectional hives, rather against my will. I had just put one together when I was told a swarm was out I grabbed one section with eight frames and dumped the bees into it. While I was making them all comfortable, another swarm gathered on a limb in the same tree, and I put them in the other section of eight frames. Just then a small swarm came from somewhere, and soon the air seemed to be getting thick with bees—more bees than I had ever seen out at one time. They finally settled, and filled this shallow six-inch shell full, covered the top and sides, and spread out on the ground till the hive was out of sight.

Well, I put the two six-inch bodies together, and a super on top; but it took the bees four days to get inside. On the second day I found a dead queen in front of the hive. On the fifth day I looked under the cover and saw the sight which Dr. Miller refers to as the prettiest sight ever seen in a super—27 sections, every one sparkling with honey, and every one the same shape and size. Five days later I slipped a super under this, and they gave me 54 sections of beautiful honey from this August swarm.

For the last few seasons I have been raising the supers and putting empties below and enjoying the pleasure of seeing those lower supers nearly all evenly started; but there must be a large force of bees first. In fact, you must have a surplus of a surplus of bees.

Dr. Miller, will you please tell us in what part of the super to put the bait sections when we do not use an excluder?

Bradshaw, Neb.

CUBA

Not Desirable as a Place of Residence for American Citizens.

BY FRANK REIMAN.

Receiving many inquiries concerning Cuba I would say that one who can make a living in the United States is better off there; and those who can't will surely starve here. The $500 that had been promised me for about $1500 damages by revolutionists was cut down to $17.50. I had the check for nearly a year, fighting the government for the $500, but could do no better, and got the check for $17.50 cashed to help pay about $50.00 expenses.

It should be remembered that only Spanish is spoken in Cuba, and one who can not speak that language can not get along except in Havana, where there are about 5000 Americans. Outside of this city I don't think there are 300 in Cuba who can speak English.

Cuba is all right to visit in the winter time; but in summer one can not get through the mud. There are no roads.

WHY THE HONEY BUSINESS HAS GONE TO SMASH.

I don't think there is a place now in the northern provinces where one can keep bees without feeding. Fire is fast doing away with the honey plants and trees. Every man, woman, and child smokes and throws the cigar-stumps anywhere, resulting in millions of dollars' loss yearly from such carelessness.

The honey crop is about half of that of last year. There was too much drouth in the summer.

Manzanillo, Cuba.

IMPORTANCE OF URGING THE USE OF HONEY AS A DAILY FOOD.

BY J. H. BURKHOLDER.

I have been a constant reader of GLEANINGS for about twenty-five years. My father used to keep a number of colonies in box hives, but I had them transferred to movable-frame hives as soon as I could handle the bees, and a part of my work on the farm was to look after them. In those days we had the common black bees, as fierce as hornets and as bold as lions. Whenever I heard some one call from the house that the bees were swarming I would get my armor on and prepare for war. This armor ordinarily consisted of a heavy coat, buttoned tight at the neck, with a veil tucked inside; strings were tied around my wrists and ankles, and I always wore a thick pair of mits. How I used to sweat! It makes me shudder when I think of the stings of those times.

The hive I now use is entirely different from regular hives, for it is nearly cubical in shape; and if space would permit I would give some good reasons why I prefer this style of hive.

To one who is just starting out in the bee business, or to one who keeps just enough bees to get honey for home use, I would say, "Get busy, and increase the bees." There is money in bees if they are given the right care. The only armor necessary is a good smoker, and, in some cases, a veil. If bees are handled quietly they will be more gentle.

In this part of Ontario our honey-flow is over in two to four weeks During the rest of the season the bees bring in only enough for their own use. We get most of the surplus honey from clover and basswood.

I sell most of my honey in one, three, and five pound glass jars. The three and five pound sizes are the ordinary one and two quart fruit-jars. These make good packages, for people do not object to paying for jars that they can use after the honey is gone. I use the straight screw-top jelly-jars for the one-pound size. On my label I urge the use of honey as a daily food, and I find that, where I used to sell a few pounds to be used as a luxury, I now sell, to the same parties, fifty to one hundred pounds for the year's supply. The winter's supply of apples, potatoes, etc., is ordered at one time, and why shouldn't honey be bought in the same way?

Binbrook, Ont., Canada.

PHOTOGRAPHIC HINTS FOR BEE-KEEPERS.

The Art of Disposing of the Lights and Shadows.

BY F. DUNDAS TODD.

[Mr. Todd was formerly editor of the *Photo Beacon*, of Chicago, and while the health of his family made it necessary for him to sever his connections with that journal, and go west, he still is regarded as an authority on the art of picture-taking, even though he is now engaged in other business. Inasmuch as many bee-keepers are taking pictures to illustrate phases of apiculture in this journal, his instructions on that fascinating art may be read with interest and profit.—ED.]

Picture-writing preceded word-writing in point of time. The former was in use many thousands of years before the latter. As a matter of fact, it has been conclusively proved that word-writing gradually evolved from picture-writing. The crude drawings in course of time gradually became abbreviated in form, lost their original significance, became merely arbitrary signs for syllables, and ultimately with still further curtailment evolved into the letters of our present day, Words undoubtedly convey abstract ideas just as well as picture-writing would do, or perhaps better; but when it comes to the elucidation of a concrete fact a picture is far ahead of the printed word.

Bee-keepers as a class are very decidedly concerned with things; and, what is greatly to their credit in this individualistic age, they are anxious to help their competitors by describing for their benefit such new appliances as they have found to be advantageous in the pursuit of their calling. It is not business in the strict sense of the word; it is the outcome of the ethical instinct which seems to be more highly developed among bee-keepers than the followers of any other calling with which I am acquainted, with the possible exception of the medical profession. Possibly it is the result of practical acquaintance with the inner workings of a very advanced form of a communistic form of society in which each provides according to ability and receives according to needs, where the life of the community is admittedly of greater importance than that of the individual.

Following this instinct we find the bee-keeper anxious to describe to his fellows some new appliance that he has developed and finds to work well; further, he often accompanies the description with a photograph, realizing that the picture will or should be more effective than the description. We all feel grateful for such kindly consideration, but have often wished the accompanying photograph was of better quality—that, in the words of the average individual, it was a great deal clearer, so that we could follow the details. Let me illustrate this point.

When Mr. Hand's articles appeared in GLEANINGS I was decidely interested in them; and having, a year ago, considerable leisure I decided to build a model just to see how it looked. Now, thephotographs that were reproduced were in many ways above the average, but they failed to show some of the finer points of construction.

Again, there is that Nestor of bee-keeping, Dr. Miller, whose "Forty Years Among the Bees" is in my hands every day from March to September, for the very simple reason it comes nearer being specific in the details I want to know than any other book on bee-keeping. I bear the reputation of being able to get into a scrap (verbal) easier than the next hundred men one can meet, but "Forty Years" has been of such great help to me that, if it would give Dr. Miller any pleasure to pitch into me, I would take my medicine like a man and try to smile as sweetly as the doctor himself. To make his meaning clear, Dr. Miller has made many photographs; but, unfortunately, their quality lags far behind his good intentions just because he did not know enough. One purpose of this article is to add a little to the knowledge of Dr. Miller, and I sincerely hope I shall be able to repay some of my indebtedness to him before I close, and also prevent other contributors to bee literature falling into the same errors.

As I write, there lie before me two books—"Forty Years Among the Bees," and "A B C and X Y Z;" and I would ask my readers to follow my example so that they can refer to the illustrations as I discuss them, and so understand the principles I wish to inculcate.

First, let me point out that nearly all the appliances we use in bee-keeping are solids with three very definite dimensions—length, width, and height; and in photographing them we ought always to show these three dimensions. Look under the caption of "Hives," in the A B C book, and you will find that the artists who drew the illustrations knew the importance of this principle, for in practically every instance the drawing shows two sides and the top of the hive. The photographer who made the illustrations of the Hand hives seemingly understood what he was doing, as he has carefully followed the same lines. Now compare the illustrations on pages 381, 382, and 407, where only two sides of the hive are shown, and one can see at once how they lack in effectiveness and pictorial quality. Those who possess Dr. Miller's book can compare the hive seat on page 63 with the section-case on page 285, or the hives on page 213 with those on page 43. The same principle holds good, of course, when making a general view; for instance, the Macklin apiary, No. 17 in the A B C, gains much of its effectiveness from the fact that, with one exception, every hive shows the three dimensions. No 15, it will be noticed, is faulty in the center of the field of view. There are other principles concerned that will be dealt with later on.

It is possible to show the three dimensions, and yet be at fault pictorially. Here is where Dr. Miller is an especial sinner. When he has a small bit of apparatus to photograph he sets it up and points the lens at the center of it. Typical examples you will see on pages 17 and 19 of his book, but you will find the right way on pages 129 and 183.

Everybody knows that it is light that does the drawing in photography; but very few realize how important it is for the light to fall upon the object in a particular way, no matter whether we are trying to get pictorial results or merely show details in a bit of apparatus. Once in a while one meets with an example of the ordinary amateur who thinks he knows it all and sums up the whole matter by stating that the sun should always be behind one at the moment of exposure. For an example of this kind of lighting look at

illustration No. 7 at the end of the A B C. The shadow of the photographer on the gound tells us the sun was assuredly behind him, and this fact accounts for the flatness of the picture. I wish I could point to a first-class example of lighting, but can not find such in the book—at least not of an apiary. Let me state the principle first, and then we can look for examples. It takes both light and shade to indicate solidity on a flat surface like a sheet of paper. Broadly speaking, one of the sides of a solid object ought to be in sunlight and the other in shadow if we want to get the best effect of solidity. Once more, look under the heading of Hives, in the A B C, on p. 245, and note how the artist has made one of the sides darker than the other; and it is also worth while to observe that he prefers the front to be lighter than the side. This is the whole problem in a nutshell. When you want to photograph a hive or an apiary, something you can not move about to get the lighting you want, you must wait until the sun comes round to a favorable angle, and then make the exposure. Any old time will not do if you want a first-class picture; and I can say further you will have only about half an hour's leeway if you want the best possible. Now turn to pages 238 and 239, and you will see a bunch of photographs by a man who knew what he was about, for in every one he has the unimportant side of the hive in shadow. Then turn to the end of the volume, just to see how many good intentions were ruined by an ignorance of this one principle.

Lighting, I am afraid, never entered into Dr. Miller's calculations; but several times he blunders on to rather good effects. For instance, on page 71 of his book the light and shade on the hand is very fine. Again, on page 91 the basket is beautifully rendered, simply because the end is in shadow. Note how effective is the illustration of the row of hives on page 107 due once again to the strong sunlight falling on the fronts of the hives, while the sides are in shade. But our learned friend shows some awful examples because he did not know. Thus on page 123 we see the shadow of his shoulders squared away as he points the camera at the hive-stand on the ground. Two pages further on the lens is pointing almost into the sun, and so all detail is lost in the feeder. Yet on page 129 the feeder is placed right and lit right.

The proper lighting of a small appliance is very important, as the details must be brought out so that one can see them. I like the doctor's book just because he goes so thoroughly into the details of his practice, and in many ways I am endeavoring to follow him. He is the only writer who goes minutely into hive-construction, so far as I know, and I want to say that this past season I would have been in a pretty fix if I had not had his "Forty Years Among the Bees," as I am so far from supplies, and was compelled to make my own hives. It can, therefore, be readily understood how much I had to rely upon books.

As a good example of detail lighting turn to page 39 of this book and note how the shadows pick out the details of the bottom-board. Then turn to pages 117 and 119 and realize how much I puzzled over the hive-covers. I notice our editor wisely depends upon drawings for such small detail work; but if the original photographs were carefully taken there would be no necessity for their being redrawn.

When a small object is to be photographed it should be set at a convenient height so that the camera will not need to be tilted downward to include all of it. Then it should be adjusted in its relationship to the sun's rays until the upward-projecting pieces are in shadow; but this shadow must be confined to themselves—that is, the shadow must not spread on the parts that are flat, because with such a condition there would be no definite line of demarcation between the upright and horizontal parts. Once the lighting is right, choose a point of view that will show the dimensions of height, length, and width. If preferred, the photograph may be taken indoors near a window; in fact, I should prefer such a place, as the lighting would then be under control, and on a dull day one could secure the contrasts of light and shade that are not possible out of doors.

Gentle reader, did you ever see a photograph of a house that suggested that it had been on an awful spree and could not possibly stand up straight? If you look through the volumes I have been discussing you will find quite a few awful examples. The fault lies with the photographer. No, he was not drunk, but his camera was out of plumb, that was all. With every exposure the plate ought to be absolutely perpendicular, and its bottom edge perfectly horizontal; but the ordinary person can not see any thing wrong with the average landscape, even when this rule has been neglected. I can, and it jars on me just as much as my singing would on the nerves of Dr. Miller if I were audacious enough to tune my vocal cords in his hearing, which I am not. But the defect is very readily noticeable in the case of a building. Many hand cameras these days have a level on them, and when making an exposure on a building, a hive, or some detail work, one ought to pay as much attention to this level as to the finder. When no level is with the camera, then use a pocket level on top of the instrument, leveling it both ways.

Do not underexpose. Take care to give enough time; and if you have any doubts, just double what you thought would be right; and if you still feel doubtful just double again. Very few photographs are flat from overexposure. The truth is, they are so from flat lighting, as I think you have now learned from the examples that have been under consideration.

The printing process is worthy of a great deal of study. Most amateurs are delighted with the gaslight papers, such as Velox. They are assuredly a great convenience; but, like most things in life, they have their drawbacks. In the first place, they are short-scale papers. Let me explain what that means. From intense sunlight to deep shadow there is a decided range, as everybody knows. We can on paper show this gradation and adjust a scale to measure it by. For convenience in one popular system, the range of gradation from fleecy clouds to black velvet has been divided into 32 degrees. Now, if we take a negative graduated according to this scale we shall find that most brands of gaslight papers can not render more than half the tints on the scale; and, of course, if they can not do that they can not print all the delicate gradations in a fine negative. When the blacks are nicely rendered you

will find a woeful lack of gradation in the high lights; and when the latter are first rate, the shadows are merely black smudges. Now, these effects are often very pleasant pictorially; *but* (and a big *but*, Mr. Editor, because you are interested here) from such prints are made very poor reproductions for magazine use. When you send a photograph to the editor for reproduction, not only you but that gentleman and his readers want it to be good; and it is up to you to send him a print that is worth while. The engraver prefers to work from a glossy print on printing out paper such as "solio," and he likes a little red left in the shadows. So if you are going to send a photograph to the editor for reproduction, please make it on solio; and if you are too lazy to tone it in the single bath, just invest in a bottle of fixing and toning solution and let the print lie in it until all the red is gone excepting from the shadows.

A solemn word of warning in conclusion. The lighting principles that have been advanced are not intended for portraiture; though, alas! the beginning amateur tackles them first, rushing in where masters fear to tread.

Victoria, B. C.

A NEW HONEY-STRAINER.

BY S. T. PETTIT.

I believe that there is nothing better than cheese-cloth for straining honey; for when the cloth becomes clogged with cappings, etc., so that the honey runs through too slowly, it may be hung over the side of a pail to drain, and a fresh piece of cloth used without loss of time. To clean a piece of cheese-cloth, hold it by two corners and dip it in lukewarm or even cold water, lifting it up and down. It should not be rubbed, for this works the wax into the cloth.

For several years we have been using a strainer that pleases us very much. It is shown in the accompanying illustration. The outside can is about 16 inches in diameter and 9 inches high. In the center of the bottom is a tube 2 in. long and 2 in. in diameter. Inside of the tin can is a wire-cloth basket of about half-inch mesh, 15 inches in diameter, and 8 inches high. This is supported half an inch above the bottom of the tin can; and since it is smaller in diameter there is at least a half-inch space between the sides of this basket and the side of the can. It can be seen that this wire-cloth basket is used to keep the cheese-cloth (which is tucked down into it) away from the sides of the can so as to provide the largest straining surface possible.

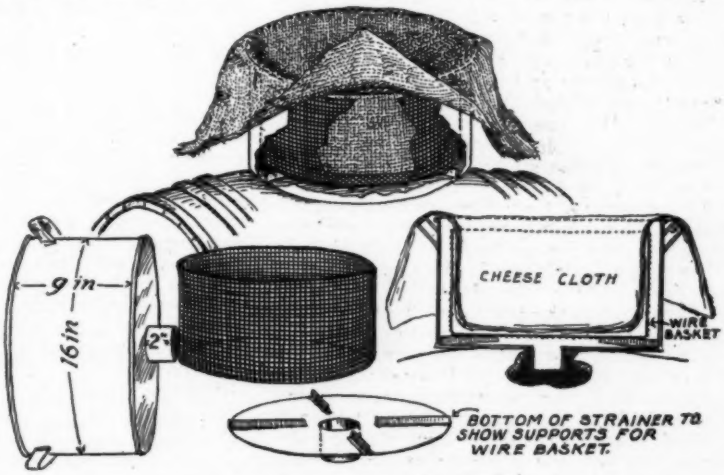
As can be seen, this strainer is set directly over the barrel if desired, although it may be used, of course, over any honey-can.

The chief advantage of this strainer is that a large straining surface is provided in a very small space, and there is no fine wire cloth to get clogged with cappings, etc. Furthermore, it strains and delivers the honey in a closed-up cleanly way, protecting it from insects, dust, and dirt.

Aylmer, Ont., Can.

[In our opinion this strainer has exceptional merit. When all is said and done, there is probably no better material for a honey-strainer than cheese-cloth when the thoroughness of straining is taken into consideration as well as the case of cleaning. The great trouble with cheese-cloth as ordinarily used, tied over the top of a can, is the relatively small amount of straining surface afforded, and the time required for replacing the clogged-up cloth. In the Pettit strainer we believe that these objections have been fully overcome. It is a well-known fact that a vertical straining surface is not as easily clogged as a horizontal one; and since there is a large amount of vertical surface in this strainer the cloth will not quickly become clogged; but when it does, it may be drawn over to one side, the corners brought together and tied so that they will not slide down into the can, and in this way the work is not delayed. As soon as most of the honey is drained out of the clogged cloth it may be taken out and rinsed later. Our authority on this statement is Mr. Morley Pettit, who has used this strainer for several years with the greatest satisfaction

For the largest apiaries possibly a somewhat larger can would be necessary; but even if this were the case it would still be more compact than almost any other strainer of equal capacity. Mr. Pettit also devised a frame-work for the inside to increase the straining surface, but it seems to us that this would hardly be needed—ED]



THE PETTIT HONEY-STRAINER.

A handy can adapted for holding cheese-cloth without the use of strings or wires, in such a way that the greatest possible amount of surface is secured in a small space.

HEADS OF GRAIN

FROM DIFFERENT FIELDS

NEARLY HALF OF AN APIARY OF SIXTY COLONIES DEAD; WHAT WAS THE CAUSE?

About the 15th of October we prepared our sixty hives of bees in the usual way. Each hive contained about six frames of stores, and the colonies seemed to be of the usual strength. Some of the hives were of the dovetailed pattern, and some Wisconsin, all of them being single-walled. A few of the colonies had two hive-bodies, one on top of another, and a very few had one or two supers of sections containing a little honey for the bees to clean out. Some of the hives faced east and some south, and all were set up from the ground on stakes or hive-stands.

On top of the frames we put a few crooked sticks in order to make a space for the bees to cross over above the top-bars; and over these we put boxes having burlap bottoms, containing 2½ to 4 inches of chaff.

The summer of 1908 was very dry; but we averaged one case of honey to the colony, besides a lot of partly filled sections for the house. During the last of November we had a little snow; but during the first of December hard weather came, and from then until Jan. 5 the bees had hardly a flight. Some of the days were rather nice, but still not quite warm enough for the bees to fly. On the 5th of January I looked at the colonies and was surprised to find nearly half of them dead. I had one double-walled chaff-packed box hive; but the result in this seemed to be no different, and I was unable to find that the method of packing, whether two stories were provided, etc., affected in any way the results. The size of the entrance also seemed to have made no difference. One colony had been robbed; but all the rest of the hives were heavy with stores. A number of the colonies seemed to have had dysentery. The frames were somewhat damp and mildewed, and the honey almost all candied. Bees in the clusters were dead, and there were also many dead bees on the floors of the hives.

We have wintered bees in this way for a number of years, and we should like to know where we made our mistake this time. Last winter we had about 55 colonies, and we had no loss.

If we should have another long spell when the bees can not fly, would it be better if we put the hives in a shed, barn, or vegetable-cellar to save the bees? What can we do with the frames of candied honey? There are enough dead colonies so that we could give every one that is left a second story of full combs if necessary.

We had an unusually small number of swarms last season, there being in all probably not over five or six. The honey did not candy any worse this year than it has done in other years. I remember at least one fall when there was candied honey in the middle frames even before cold weather came. WM. LANSDOWN.

Fort Lupton, Colo.

[We have heard other reports from Colorado, showing a rather heavier loss in bees in wintering than usual. Mr. Frank Rauchfuss, of Denver, believes that the fumes from the big smelters are responsible for this loss in some cases; but in the the case of the few colonies it would be our opinion that our correspondent has too much useless room over his brood-nests. If he had taken off the upper stories, placed a non-porous cover over the frames that the bees could seal down, and then over this put some warm packing which is kept dry, he will have much better results. When we were in Colorado one winter we observed that the bees generally were confined to a single story with a telescoping cover having burlap or carpeting under it.

As to the colonies not given too much room, the cause of bad wintering might be the stores. Possibly this was the case for all the colonies.

We would not advise moving the bees, putting them in a shed at this time of the year.—ED.]

"POLYGONUM INCARNATUM" (KNOT-WEED).

I have been reading with considerable interest, p. 1313, Nov. 1, about the Manley method of extracting wax from the combs out of hives in which colonies had died in the winter because of the aster honey. I am sure that rendering wax from old combs is a long way short of taking off honey.

Our place is close to the Licking Reservoir, a body of water covering some 7000 acres, built years ago to feed the canal. For miles all around it there grows a weed, *Polygonum incarnatum*, or knot-weed, which blooms in September, and yields an abundance of fine wholesome honey. The flowers are large spikes of pink blossoms that present a beautiful sight when in full bloom. It grows mostly in low places like old ponds, and in cornfields where the corn is drowned out. It flourishes most in a wet season. I have had experience with it for three years. The first two were wet, and it grew profusely. Last season, on account of the drouth there was not so much of it; but what there was, yielded honey. All the unfinished sections that I left on from June were filled, and extracting was the order until frost came, when I took the covers off to put on cushions for winter. The hives looked as if they were tenantless. The bees were clustered down close to the bottom-bars. All the combs were full. Bees here are all in fine shape up to date, and were flying yesterday. I am looking forward to a prosperous season, and am preparing accordingly. FRANK MCGLADE.

Hebron, O., Jan. 5.

A BEE BUNGALOW.

The engraving on the front cover of this issue represents the apiary of Henry W. Britton, of Stoughton, Mass., which consists of a bee-bungalow 14×20 ft., and a shelter for the bees 8×25 ft. The walls and roof of the bungalow are shingled, and left unstained. There are ample windows and doors in the building to admit plenty of light, for here Mr. Britton, in his spare moments, works on his bee-hives, putting them together, etc. At the west end is a chimney 7 ft. wide, brick-lined, made of stones. A large fireplace of brick, with a Murdock damper and crane, with extensions, heats the bungalow; but

in colder weather a fire may be lighted in a small stove.

This building is not plastered, but is finished in the natural wood. At the front door is the original doorstone, taken from the Isaac Stearns home, the first one built in Stoughton, in 1716. On all the doors are hinges and latches, forged by hand over one hundred years ago. Inside the bungalow is a carpenter's bench and supplies which go to make up a first-class apiary.

The bee-shelter runs north and south, with a passageway two feet wide between the two rows of hives, which face east and west. The south is left open, while the north end is boarded up with a door in the center to pass into the bungalow. Mr. Britton had board shutters made to fasten on the sides in winter. The bees in this shelter fly out into the light and disturb the operator very little.

The bees are all in double-wall hives, except one, which is in the stump of an apple-tree, which was made larger inside to give them more room. A barrel with both heads out was then put over the stump, with packing between for a winter cover. Mr. Britton enjoys the bees very much, and they give him all the honey he wants, of different kinds, and some to sell. Next season he intends to have a hive at each front window in the bungalow, raising the window a little, and using the sill for the alighting-board. During the past season he has had three colonies in the tower of his house, and one in his work-room on the second floor, and they produced a fine lot of honey. The writer superintended the building of this bungalow, which was completed in November. E. C. BRITTON.

Canton, Mass., Dec. 7.

ARE LUMBER-CUTTERS TO BLAME FOR FOREST FIRES?

I have noted what you say, page 17, Jan. 1, regarding forest fires. You are certainly wrong in general as to the source of the fires. In our town there are nine mills which have been in operation over 25 years, and in that time there has not been a single fire started by a mill or gang of laborers. All the fires in this county for several years have been set on purpose, or else they came from campers, hunters, or fishermen. Not a single fire broke out till the hunting season opened.

Bleecker, N. Y. JOHN M. PETERS.

[It is true the lumbering interests do not directly cause the forest fires. It would certainly be against their interests to do so; but they have a careless way of leaving the brush scattered over the ground; and this brush drying becomes very inflammable. If they were compelled by law to clean up all this loose rubbish, leaving the ground clean, there would not be these forest fires, for the reason that no fire could start in the first place. —ED.]

CARBON BISULPHIDE INJURED THE FLAVOR OF HONEY.

Some time ago I had occasion to fumigate some comb honey with carbon bisulphide. The lard-cans in which I put the sections were perfectly free from all odor of any kind. The honey was of very fine quality, and delicate in flavor. We aired it well after. We placed the bisulphide in a small vial, about an ounce to each 50-lb. can, and allowed it to remain, possibly, a week. The first time I tasted the honey, after this, I said it had the after-taste one gets from evaporated apples that have been "sulphured," and that the delicate flavor of the honey was destroyed. After several days of airing, the unpleasant flavor diminished, but the delicate flavor was gone forever, leaving only an *ordinary* honey instead of a fine quality. We had the same result last year.

It seems impossible to keep the wax-moth larvæ out of the honey when stored. In the above case I had taken the supers from the hives and packed the sections in the cans and covered with the tin covers. In about a month I found the small larvæ in the sections.

Rugby, Tenn. NELLIE SCHENK, M. D.

[We have done quite a good deal of fumigating with carbon bisulphide, but have never noticed any difference in the flavor of the honey afterward. Possibly the long time which your honey was subjected to the gas accounts for the loss of flavor.

We should be glad to hear from any who have had experience in the use of this chemical, with regard to the quality of the honey afterward.—ED.]

MORE ABOUT THE CONDITIONS IN OKLAHOMA.

In regard to the high winds here in Oklahoma I would say that they are not so bad as to prevent the bees from getting back to their hives. Once in a great while we have a hard windstorm, and I have watched the bees enough to know that, when they are out at work, and such a storm comes up, they flock to the hives by the thousands. In windy weather the bees work just the same as when there is no wind — that is, if there is plenty of honey in the fields; and although the wind bothers them considerably they always "get there."

As to the sudden changes keeping the bees away from the hives and freezing them, I have found that the bees begin to come back in great numbers just as soon as there is a slight change in the temperature. It rains rather too much here in the spring; but otherwise this is a good country for bees. During the year 1905 we had about 25 lbs. of surplus honey to the colony. In 1906 we got no surplus honey; but in 1907 we had about 50 lbs. to the colony. In 1908 we averaged 25 lbs. among the strong colonies. The weaker ones got enough to build up in good shape for winter.

I do not spend enough time with the bees to make a business of the work, as I keep them merely for pleasure, and for the honey that we can use at home. J. H. FLIPPO.

Chickasha, Oklahoma, Jan. 12.

AMOUNT OF SWEET-CLOVER SEED TO SOW TO THE ACRE.

Mr. Root:—I believe you are advising wrongly when you suggest sowing 4 lbs. of hulled or 8 to 10 of unhulled sweet-clover seed per acre, for the reason that, at any time of the year you may sow it, there is only a part of it that will germinate the same season it is sown, the rest not starting till the next season. I have sown at least 25 or

30 acres, and put on not less than 8 to 10 lbs. of unhulled seed and sowed it early in the spring too, and I have never been able to get a good stand the same spring, and the next spring the rest of the seed would come up, and for another year I would still have only a partial stand, so you see that leaves me until the third year before I can have a perfect stand, as the seeding the second year seeds itself.

I believe we should sow not less than 20 lbs. of unhulled seed, or 12 to 15 of the hulled per acre; then you may rest assured you will get a stand.

I have sown several thousand acres of alfalfa, and the ones that are successful in getting a stand are those that are not afraid to put on at least 15 to 20 lbs. per acre, and then your ground needs to be in perfect order. I sowed about three acres last spring, and put on about 20 lbs. of the unhulled seed, and I got a fine stand. Enough will come up from the seed again this spring to give me a good stand next spring.

Augusta, Kan., Feb. 9. R. L. SNODGRASS.

BEES FIGHTING IN THE WINTER.

My bees have been killing each other ever since the working season was over. When it is warm enough for them to fly they are slaughtering each other just the same as they do sometimes when we unite them. Please tell me what is the cause of this, and what I can do.

Townline, Pa., Jan. 5. JOHN M. HUFFMAN.

[It looks as though your bees, on these warm days that you refer to, were inclined to rob. The fighting at the entrances could hardly be accounted for in any other way. We believe that, if you contract the entrances to the weak colonies so that not more than one or two bees can pass in or out at a time, the trouble will be pretty well overcome.—ED.]

ROOFING-PAPER FOR HIVE-CLOTH; ITS CHEAPNESS, AND HOW IT PROTECTS A COLONY AGAINST A LEAKY COVER.

I read with interest what Mr. Muth-Rasmussen had to say about hive-cloths. p. 936, Aug. 1. I have tried gunny-sacks, enamel cloth, hay, building-paper, etc., for hive-cloths or mats; but I have never found any thing nearly so good as one-half or one ply composition roofing, flint koat, and also mathoid roofing. If there is a leaky hive-cover it will not allow the water to run through on the frames at all, as the bees will soon glue the edges fast to the hive-sides. Then, too, it is cheap, and makes but little trouble.

The roofing comes in rolls of one and two squares,—that is, 100 square feet, and one ply costs only about $1.80 per roll or square. It is 3 ft. wide, and cuts with little or no waste.

Lake City, Fla. J. O. BATES.

I. L. SCOFIELD.

One more of the veteran bee-keepers has gone. I. L. Scofield died Nov. 15 at his home six miles from Binghamton, Chenango Bridge, N. Y., where he started to keep bees in 1869. Mr. Scofield loved his vocation, and branched out in bees until he had 400 colonies, all in chaff hives. He was a splendid bee-keeper, very particular, always bought the best strains of Italians and of other races; but he tested them thoroughly, and if they did not come up to the standard he discarded them. His apiaries were nicely located and tastefully arranged with every thing in order.

Mr. Scofield was unassuming in his ways, pleasant to meet, a man of good judgment, and willing to give his honest opinion to his brother bee-keeper. He left a wife to mourn his loss.

Groton, N. Y. W. L. COGGSHALL.

THE CLOVERS NOT KILLED BY THE FALL DROUTH; A CLOVER-HONEY CROP FOR NEXT SEASON IN PROSPECT.

The prospects for a prosperous season the coming year are bright to me. It is natural for the bee-keeper to keep an eye on the condition of things as it is produced by the weather, climatic changes, etc., and so far every thing seems good. The clover is not killed, it is naturally fond of dry weather, and you will see it coming on when the time comes. The months of March and April are the ones that try it, freezing and thawing, excessive rains, cold east winds, etc. A long cold rainy spell in the spring seems to create a kind of rust on clover which saps its vitality as a nectar-producer. A few days of drouth in May often does more harm than months of dry weather at other seasons of the year. Of course, no one can tell exactly what the harvest will be; but I am laying in unusual supplies for next year on the strength of my belief that I shall need them; and my advice would be, "Get ready;" there will be something doing.

Hebron, O., Dec. 24. FRANK MCGLADE.

COLD KNIFE PREFERRED IF KEPT SHARP AND BRIGHT.

I used to use a hot knife at all times, bother with oil-stoves, fire, and hot water, even when the thermometer showed 112° in the shade. But since learning how to use a cold knife I would use no other only in extreme cases. To use a cold knife, keep it almost like a razor, sharp and bright. We sharpen and polish our knives every day, and use four knives now instead of two as we used to do. One might just as well try to plow in the black prairie soil in Illinois with a rusty plow as to try to make a success with using a rusty cold knife.

Use plenty of water, and do not keep using the water until it gets thick enough to use for vinegar, for you lose one dollar's worth of time to make ten cents' worth of vinegar. Have a special pan of water for your hands, and keep hands and knife-handle clean. P. H. BALES.

Hanford, Cal., Dec. 30.

MOVING BEES SHORT DISTANCES IN THE SUMMER.

Having occasion to move five colonies I thought I would report results. I placed a board in front of each hive as recommended, and it worked all right, with the exception of one hive, where the board was blown down by wind directly after moving. A great many of the bees in this hive returned to the old stand, and were lost. At the present time, however (Sept. 24), this one colony has nearly made up for the loss. There is no trouble about moving bees in summer if the proper precautions are taken. JAMES H. FRENCH.

Stoughton, Mass., Sept. 24.

OUR HOMES

By A. I. Root

In secret have I done nothing.—JOHN 18:20.

Much of the time for years past I have felt that I was protesting almost single-handed against the "secret" business; but the *Rural New-Yorker* and several other agricultural papers have come out strong and clear on the subject occasionally; and now that persistent and pushing little *Farm Journal* has hit the nail on the head by giving the world a beautiful little poultry-book entitled "Poultry Secrets." When I first saw their page advertisement in our January issue I said, "May the Lord be praised for putting the idea into their heads of stopping this whole business, by putting *all* the secrets into a low-priced book." The book of 53 pages is now in my hands; and although it contains many "dollars" worth of secrets, the price is only 25 cts.; and if you send $1.00 for *Farm Journal* for *five years* the book is included. I don't see how any farmer or poultry-keeper can afford to be without the *Farm Journal* at this insignificant price.

Well, while I rejoice at the secrets they have exposed I feel sorry they did not include many I have purchased and given here in years past, not because of their value, but to show how people take money for things as old as the hills, and for things that do not do the work when you get them. There are something like fifty or sixty poultry-journals now published in our land; but until recently, scarcely one of these has lent a helping hand; on the contrary, the greater part of them have accepted, without stint, all this sort of advertisements. Why didn't some of these fifty or sixty take up the work the *Farm Journal* has started?

I am pleased to see that the *Poultry Record* (Carey, O.), isn't afraid; and to get the whole matter before us I give below some extracts from their January issue, written by L. E. Keyser:

The world is full of fakirs who prey on the unsuspecting public, and the poultry business is not free from them. They go on the supposition that a sucker is born every minute, and taat they never quit sucking. They believe that the bigger the story they tell the more suckers they will catch. While there are fakirism and dishonest practices among fanciers they are not so prevalent as the fellows who are lying for the beginner. These fellows have some wonderful secret to sell that is sure to pave the poultry-keeper's way to wealth. One man advertises that every hen is a 200-egg hen by his method, which is only 50 cents.* Another will furnish you a formula to make feed at 10 to 15 cts. per bushel, which will save $25.00 per year on every hundred hens. This wonderful secret he calls "processed oats," which is nothing more nor less than sprouted oats. The formula for preparing oats in this manner was published in the agricultural and poultry papers twenty years ago. A bushel of oats when sprouted will swell and make four bushels; so if oats are worth 40 cts. a bushel, the feed will cost 10 a bushel; and at the present price of oats (about 60 cts.), the feed costs 15 cents. There is one thing that is not explained, and that is that the sprouting of oats does not increase their nutritive value: it simply increases their bulk. Another cheap feed is advertised at 8 cts. a bushel, which is not sprouted oats nor beet pulp. I do not know what this feed is, nor would I give a dollar to find out.

A method of telling the fertile from the unfertile eggs before placing them in the incubator is advertised by a Missouri woman. This secret is for sale at $1.00, and is on a par with telling the sex of the chick by the shape of the egg.

I have mentioned only a very few of the secret processes which show on their very face that they are fakes, or at least very deceptive. You will find them advertised in many of the poultry-journals, some of which claim to protect their readers against loss from dishonest advertisers. The publisher does not consider these advertisers dishonest, because they send what they advertise, and the fact that it is worthless does not disturb the publisher.

All secret processes are not fakes; but most things that are new and give promise of being good are tried out at the experiment stations, published in bulletins, in the poultry press, or in books that pass through the regular channels of trade. When a man advertises to sell you plans for a brooder, hen-house, trap-nest, feed-hopper, or something of that nature, you know that he will send you what he advertises; but whether it will be practical for your use or not can be determined only when it arrives.

* If every hen could be made a 200-egg hen it would pay us all to invest in this secret, for 1000 such hens would make a poor man rich in a very short time.

The above makes reference to a secret offered by a "Missouri woman." We find her advertisement in the *Northwest Poultry Journal* (Salem, Oregon). Here it is:

Save useless work, also money, by testing your eggs before setting. Method, $1.00. Tester, prepaid, 50 cents. If you raise chicks by hand, you need my 25-cent booklet containing plans and information for making heatless brooders at literally no expense. Used with safety in zero weather. Twenty years' experience. Mrs. L. L. White, Montrose, Mo.

Now will the editor of the *Poultry Record* (and perhaps some other editors) excuse me if I offer some suggestions? Why not send to the woman and get her secret before condemning it? If it does what she says, it ought to be worth a *hundred dollars* to the editor of any wideawake poultry-journal. Even if she *does* want $1.00 for the secret, and 50 cts. more for the tester, I sent her the money the minute I got my eye on it. If I have my usual good luck we will all have it in due time. In this same *Northwest* journal I find the following *in the reading-columns:*

MORE ABOUT MITES.

I should like to tell your readers my way of getting rid of mites. On coming to my present location I found hens dying from mites. The hen-houses were certainly alive with them, and the whole ranch infected. I gave the houses and perches a thorough cleaning with Avenarius carbolineum; but the hens kept getting infected outside. I began giving my remedy with their feed, and in a very short time could safely offer five cents each for mites. They simply can not live on a hen fed this remedy. It is cheap and simple and perfectly harmless, and will rid a place of these pests quicker than any other way I have yet discovered—is equal to a fire.—GEO. A. SPRAGUE.

[MR. SPRAGUE is advertising his remedy in our miscellaneous advertisements. It will pay you to get his recipe.—ED.]

After reading the above we turn over to "miscellaneous ad's," and find the following:

Will you give $1.00 for formula to mix with feed, guaranteed to kill every mite that bites your hens? Costs only 25 cents to fill. Sent by George A. Sprague. Gaston, Oregon.

As the above is a fair sample of what we find in many poultry journals, let us stop and consider it a moment. First, the editor gives the man Sprague a place in the reading-columns; he lets him say "I should like to give (?) your readers my way of getting rid of mites." No doubt—*at a dollar apiece;* and then the editor adds, "It will pay you to get his recipe."

If this is the way we are to do business, what are *poultry-journals* for? Are they not to give information, and tell subscribers how to do things?

And how about our poultry-*books?* This idea of *feeding* something to kill the mites reminds me of boring an auger-hole in a fruit-tree and putting in some "medicine" that will kill every insect on the tree now and forevermore. I suppose fakirs are still going round getting money for this *absurd* swindle if they can find a locality where the folks don't take the farm papers. I have also sent Mr. Sprague his dollar, and we will all see what it is. What have our experiment stations to say in regard to this kind of work? Is it possible to banish the "mites" by putting something into the feed?

Here is one more from the *Poultry Herald* (St. Paul, Minn.):

Set more fertile eggs; 15 to 30 per cent better hatches from store or farmers' eggs by using my grading method. Easy to learn. Eggs graded in three grades. Grade No. 1 hatches over 30 per cent better than grade No. 3. Send 10-cent piece securely wrapped for full particulars. Money back if not satisfied. Stamps not accepted. Joseph Ruel, Withrow, Minn., Route No. 1, Box No. 18.

As the amount asked for in the above is so small, it is not particularly objectionable; yet how does it come that no poultry journal has ever gotten hold of it? If it is true that you can pick out eggs as outlined above, it should be carefully tested by some experiment station, and a neat little bulletin published giving full particulars. Of course I have sent the dime.

Years ago there were many secrets advertised about bee-keeping. When GLEANINGS was started I decided it should give the bee-keepers of the world not only all the news in regard to the industry, but all the secrets. When some one declared he had invented a way to fertilize queens in a wire-cloth cage I prepared to make him a visit, even if it did take about all the cash I could scrape up at that early day. Before I got started, however, he was kind enough to inform me he feared he was mistaken, even if he had already announced his discovery in print. (Since then we have invested quite a little money in the same arrangement, but it "don't seem to go," even yet.) We have literally "ransacked the earth" for any thing that might prove new and valuable to honey-producers, and we have our reward.

Now, brethren of the press, you who are editors of the fifty or sixty poultry-papers, why not hunt up and purchase with honest money these secrets and give them to your readers? Say, as do the *Farm Journal* folks, "We will pay $10.00 for any secret" "that is both good and new."

One of the worst features of the "secret" business is that it takes the hard-earned dollars, usually, from poor hard-working people, often from sick people—those who are ignorant and do not keep posted. I know about this, for letters are coming to me almost daily, asking if I would advise investing, etc. Giving some sort of book for the money is not quite as bad; but I do feel that it is almost an outrage to take $2.00 for a cheap paper primer of less than 100 pages. If you have something to tell, get it up in a nice attractive book like "Poultry Secrets," and sell it for 25 cts. and make everybody happy who buys it. "Seek ye first the kingdom of God, and his righteousness, and all things else shall be added unto you."

As I have not very much time to read *all* the poultry-journals, there may be quite a number that do not deserve my criticisms, and of these I beg pardon. I will close with a very kind letter from one of their editors.

Mr. A. L. Boyden:—Your publication is a most meritorious one, but I can not help regretting the criticisms Mr. A. I. Root is prone to make. For instance, on p. 1533, Dec. 15, he refers to *Poultry* and the Petaluma *Poultry Journal* as the only two poultry papers he has found which are willing to lose some of their advertising by cutting out swindlers and frauds. Perhaps it would interest yourself, or even Mr. Root, to know that *Poultry Husbandry* is not bought and sold by its advertisers. There are poultry-breeders using space in other poultry-journals that can not buy space in *Poultry Husbandry*. I am sure that, if your Mr Root would look for the good instead of being somewhat pessimistic, he would find a great deal of good. For instance, take in your own city of Toledo, the *Toledo Blade*, which does not accept brewery or whisky advertising, and editorially supported the non-partisan Senator Sylvester Lamb in the late campaign. This was a great deal for the old conservative *Blade* to do, as it is a strong Republican paper. It supported Sylvester Lamb because he more than any one else was responsible for getting the local-option bill through the Ohio legislature. Again, this was a great deal for the daily *Blade* to do, because the weekly *Blade* has a circulation of 175,000 copies, and the breweries and whisky retailers cut the weekly off their list.

As hard up as this little publication is, we are trying to play the square game. FRANK L. PLATT, Editor.

Waterville, N. Y., Dec. 26, 1908.

Many thanks, dear brother, for your very kind criticism; and may the Lord be praised to know that the *Toledo Blade* has turned down the beer and whisky advertising.

POULTRY DEPARTMENT

CONDUCTED BY A. I. ROOT.

"NOTHING TO DO BUT GATHER THE EGGS," ETC.

On p. 69, Jan. 15, I told you I got three eggs, the day of my arrival, from my flock of 70. Well, by diligent care I increased the daily number gradually until I had from 35 to 40 eggs per day. When I was a boy, "keeping chickens," I figured out I was doing very well when I could *average* an egg a day from every two hens. With the Philo system, only six hens in a pen, we can do much better, of course; but it not only costs a lot of money to install such a plant, but it is a lot of work to look after so many little houses. Well, if there is any place where every thing favors "nothing to do but gather the eggs," Florida is the place. When the chickens are all in one flock, and "run loose," no fencing is needed; and when they roost in the trees, as my 70 do (all in one little pine-tree), there is no *particular* need of any house or structure of any kind—some boxes or barrels for nests, that is all. In order to save time, however, in gathering the eggs as well as to save time in feeding, I had a cheap structure made, covered with cloth except a shingle roof over one end where the grain is stored. The cloth roof over the nest apartment answered very well for *one season;* but here in this damp warm climate the cloth on the roof got so full of holes from mildew that I have just made a shingle roof over the whole structure. Stout canvas, such as is used for tents, would, of course, last longer; but I am afraid any kind of cloth poultry-house in this region would prove rather expensive in the end.

Well, something else has come to pass that reminds us the "chicken business" is not *exactly* "the thing" for a lazy man, even down here in Florida. I have so far boasted that I have never seen any "vermin" on my chickens. On p. 69 I mentioned the Orpington pullet I expressed here with my male bird. The way I came to send her was this: I prepared a shipping-crate such as you see on page 138. It was made to hold three White Leghorn males—the $5 00 chap ("select tested") and two of his young "sons." As they had been running together all summer I supposed they would, of course, be "agreeable;" but while I was eating breakfast his "lordship" would have killed the two cockerels had they not thrust their heads out of his way between the slats. I "yanked" them out of the cage in disgust. Just then this handsome pullet came along; and as he had always been particularly "sweet"

on her I grabbed her up and put her in for a sort of "helpmeet" and companion *en route*. By the way, everybody seems to admire these Buff Orpington pullets. Although they cost only 10 cts. each when they were "day-old-chicks," I was offered a dollar apiece for them when four months old. This one was laying at four and a half months, and at five months she was just *determined* to sit. Unlike the Leghorns, she was always so docile I could pick her up any time and anywhere. When I "chucked" her in with that $5 00 rooster I said, "Look here, my lady, I'll take you down to Florida; and if you want to sit down there I'll let you run in opposition to my Cyphers incubator." She is so big and heavy, and has such a great mass of downy feathers all over her, that I thought she could cover a big nest full of eggs. Well, she has been laying ever since we came, until to-day, Jan. 29, when I found her on the nest and not disposed to be *deposed*.

"How many eggs did you give her?" asked Mrs. Root.

"Twenty-five."

"*Twenty-five!* why, who ever heard of giving a hen *twenty-five eggs?*"

"Well, you know one of my Leghorns hatched eighteen chickens out of twenty-one eggs; and why shouldn't this great fluffy pullet manage twenty-five?"

"Well, you'll see."

"And *you* will see too."

Now a word about that crate for shipping, of which I have given a view on p. 138. I have had valuable chickens several times from poultry establishments that advertise big; but so far none ever came in what I call a decent shipping-coop. One man sent a $25.00 trio in a great heavy rough box that, from its useless weight, largely increased the express charge, and one pullet got her head between the slats and was killed besides. He replaced her, but used *another* great awkward ungainly box. Our case, as you will notice, is made both light and strong, with cloth netting (one-inch mesh), and thin basswood slats. The sides are frames of ⅞ light pine; all the rest is thin slats and netting. One of the upright end slats is fastened at the top with a screw. This gives an opening to put in the fowls and take them out. We put cloth part way up, as you see, inside the netting to prevent ruffing their plumage against the wires. As a result they made their long trip, and came through looking about as well as when they started. The floor is coarse burlap, supported by thin strips of wood. This burlap, or sacking, is much better than a wood floor, because the fowls don't slip about on it; and when covered with chaff it absorbs the droppings. Their feed was corn and wheat scattered in the chaff. For water, a wide-mouthed jar was securely wired in one corner. They were about four days on the way.

Well, after this long preamble I am ready for the point of my story about "nothing to do but gather the eggs."

The Leghorns are so wild (or, rather, *were* so wild) I didn't get very near any of them; but this Orpington I picked up and petted every little while. One day I thought she looked queer about the eyes, and, sure enough, there *was* something the matter. Some little black insects were clustered on her comb and wattles, as close as beads on a cushion, and some of them were shining like beads, with a suspicious *ruddy* look. They wouldn't rub off, and couldn't be *pulled* off. I turned in alarm to my Leghorns. There were a few on them, but not nearly as many. This one Orpington the enemy recognized as a "tenderfoot," and accordingly all pounced upon her. Do you remember what I said about the "red bugs" a year ago? While they trouble old residents comparatively little, they are surprisingly ready to pounce upon a new comer. About this time Mrs. Root found every Monday, after hanging out her wash, that she was pestered by a queer kind of flea. He couldn't be pulled off or squeezed with the thumb and finger so but that he could hop as lively as any flea; but he had to be mashed with the thumb nail to make him "go dead." I went for Crenshaw's catalog (Tampa, Fla.), and found the following advertisement:

CONKEY'S FLEA-SALVE,

For stick-tights that fasten themselves on the comb and wattles of the birds, multiply rapidly, and frequently cause bird to starve, as they shut out eyesight.

As soon as I found them I recalled that grease or oil is death to any sort of insect pest, and my pet pullet was soon cured; but how about the 70 up in that pine-tree? I rushed for my sitting hen (see p. 69) and found *her* head fully as badly "infested" as the Orpington. Let me stop to remark here that she later hatched *sixteen* nice chickens from her 15 eggs, and they are all alive now. (Some other hen squeezed into her nest and laid an egg or two.)

Well, as soon as these 16 were a few days old their little heads were literally "peppered" with these same "stick-tight fleas." I have "anointed" their poor little heads twice, and now they are practically free. At first I thought I would have to climb that pine-tree and catch every one of the 70 after dark; but my old (and tried) friend Shumard helped me out. If he was that sort of man he might write a five-cent book and charge a dollar or more for the secret of his wonderful invention. Here it is for you all: Teach your fowls to drink out of some kind of tub, not too high up. When they get used to it, and all drink at this one place, nail short pieces of lath clear around the tub, put far enough apart so they can get their heads through. Put a cover over the top so they must all push their heads between the pickets, and then wait a little until they all are used to getting their drink in that way. Now put your salve on the lath and on the edge of the tub. This latter is especially important, for a favorite place for the flea is under the chin. May be you never knew chickens had "chins;" but they do. Very likely plain vaseline will do about as well as any of the salves advertised. Fred Grundy, in his new book, recommends carbolated vaseline. This would surely do the business. I believe these fleas are what is called "chiggers" around here; and I wish some one would tell me if they are the same thing as the "sand fleas" of California. Most people around here say chickens must be yarded some distance from the house, and we have been obliged to fence ours off from our dooryard. Mr. Rood has about as many as we have; but his dooryard and all about his place is covered with a dense growth of Bermuda grass. As our place was all recently dug over in grading, there is much loose sand all around the

house, and these fleas seem to abound in sandy places. We are getting in the Bermuda as fast as we can. I wrote to the Florida Experiment Station, and below is what Prof. Rolfs has to say about them:

UNIVERSITY OF THE STATE OF FLORIDA.
AGRICULTURAL EXPERIMENT STATION,
GAINESVILLE, Jan. 25, 1909.

Mr. Root:—I note what you say in regard to the "chiggers," or chicken-flea. The remedy which you have used in connection with the fowls is about the best, from a practical standpoint. In my own experience, which extends over more than fifteen years in Florida, I have found no great difficulty in ridding our premises of these fleas. Sometimes they are extremely annoying and severe. At one time we moved into a house that had not been very carefully attended to; and after cleaning up thoroughly we found the sand under the house swarming with these little pests. The sand looked fairly alive with them. Of course, the pests bred under the old matting that had been left in the house for years. We also found at one time that our chicken-runs were pretty badly infested. We promptly moved the poultry to a new run. Of course, we treated the fowls before moving them. We have had as many as 300 head of chickens on the place at once.

Now as to the way in which we treated them. As soon as we found that the pest was present in large numbers we had the poultry-runs carefully raked over so as to get rid of all trash and rubbish, which was burned. Then by means of a spraying-machine we treated the part of the yard that seemed to be most severely infested. The house was treated in practically the same way. The old matting in our dwelling was, of course, taken up and burned, the floors thoroughly scrubbed, and the ground under the house treated with a spraying solution. For this spraying solution we have used both kerosene and carbolineum. The latter is much more expensive; but the former is, obviously, not safe to be used under a house. After using the kerosene the coops were thoroughly dusted with tobacco dust, getting it into the nests and cracks as completely as possible. The chickens do not seem to mind the tobacco dust; but the young fleas evidently don't relish it.

The above is, in brief, an outline of the way in which we get rid of fleas — both the chigger and the dog-fleas. I do not recall at present whether these are the same as the California sand-fleas or not. I should have to look up the literature on this subject to find out. P. H. ROLFS, Director.

If any of the friends can send me, or put me on track of any printed literature on the subject, I shall be very glad to get it. The Department at Washington, D. C., surely ought to have a bulletin covering the whole ground. Many people are deterred from coming to Florida, as I know by my correspondence, from fear of these insect pests. I feel sure there is an easy way to be rid of them, and we should all be fully posted on the best way.

DESTROYING NOXIOUS WEEDS BY THE USE OF CHEMICALS; SOMETHING FROM THE OHIO EXPERIMENT STATION.

Last spring we received quite a little advertising matter highly recommending various chemicals for killing weeds. The claims of some of these that were offered for sale seemed rather extravagant, and therefore I submitted the advertising matter to our Ohio Experiment Station, and below is what our botanist, Prof. A. D. Selby, says about it:

Mr. A. I. Root:—Your recent letter, addressed to Prof. Green, contains a reference to claims made by the Reade Manufacturing Co., Hoboken, N. J., for their weed-exterminator called "herbicide." Several claims are made for this herbicide, which is to be sprayed upon the plant. Among others "it is the preparation which actually kills weeds of all sorts for two whole years, no matter how deep the roots may be—poison ivy, Johnson grass, Canada thistle, Bermuda grass, etc., on economical and scientific principles." This preparation is, of course, sold or offered for sale to the public.

A good deal has been done in the last five years in the matter of sprays applied for the destruction of weeds, especially for the destruction of mustard weeds in fields of wheat and oats. The successful sprays for this purpose have been tested somewhat thoroughly in recent years by Prof. H. L. Bolley, of the North Dakota Agricultural College and Experiment Station, Fargo. These results are published in bulletin 80, recently issued by the Experiment Station of North Dakota. In addition to salt and some other common remedies for weeds, good results are reported from the use of solutions of blue vitriol, copperas, and arsenite of soda. The latter is somewhat more injurious to grain than the two former. The recommendations are, to use 75 to 100 pounds of copperas in each 52 gallons of water; 12 to 15 pounds of blue vitriol for each 52 gallons of water, and 1½ pounds of sodium arsenite to each 52 gallons of water. In summing up the results of his experiments, Prof. Bolley gives two lists—one of weeds which may be controlled by means of chemical sprays, and one of weeds upon which field-spraying methods as now in use are not effective.

LIST OF WEEDS WHICH MAY BE CONTROLLED BY MEANS OF CHEMICAL SPRAYS—(BOLLEY).

"The following weeds may be eradicated or largely subdued in cereal-grain fields through the use of chemical sprays: False flax, worm-seed mustard, tumbling mustard, common wild mustard, shepherd's-purse, pepper-grass, ball mustard, corn cockle, chickweed, dandelion, Canada thistle, bindweed, plantain, rough pigweed, King-head (giant ragweed), Red River weed, ragweed, cocklebur."

LIST OF WEEDS UPON WHICH FIELD-SPRAYING METHODS AS NOW IN USE ARE NOT EFFECTIVE—(BOLLEY).

"The following weeds are some which are not effectively controlled by chemical sprays as now used: Hare's-ear mustard, French weed (penny-cress); pink cockle, perennial sow-thistle, lamb's-quarters, pigeon-grass (foxtail), wild oats, chess, quack grass, sweet or holy grass, and wild barley."

It will be seen from these that the mustard-plants, with the exception of hare's-ear mustard and penny-cress, or French weed, may be controlled by means of chemical sprays; also that practically no perennial grass upon which experimentation has been made will be exterminated by the chemical sprays. These chemical sprays are useful, but have their limitations. Persons proposing to spray for the control of weeds will probably be better satisfied with their results when they use chemical sprays of known composition, according to the recommendations of those who have tested them. The directions for spraying are, apply the spray usually before the plant has opened bloom. The principle is to kill off the leaves of the plant, and in time to starve out the roots, even of perennial plants. It will be seen that much stronger solutions of copperas are required than those of blue vitrol, so that the actual cost of the sprays is not much different with these two well-known chemicals. A. D. SELBY, Botanist.

You will notice from the above that Prof. Selby recommends using chemicals instead of some secret manufactured composition, and I feel sure this is the better way. I made some experiments in the matter, and it is really astonishing to note the way in which copperas will kill dandelions without harming the grass and other plants growing close to it. Mrs. Root kills grass and weeds, that come up between the stones on the pavement, with boiling water, and it seems quicker and easier than the chemicals; but, of course, this can not be used where you want to kill only the noxious weeds without harming the other vegetation.

"CHURNLESS BUTTER."

I was considerably amused by the churnless-butter secret. It is certainly old, probably in all essentials as old as butter itself. Butter is still made that way by a few of the smaller farmers in Devonshire, England, though it is considered about as much out of date as the scythe for cutting hay. The milk should be stood in a rather deep pan, and brought very nearly to the boiling-point. It needs rather careful watching, as, for the best results, it should not be removed from the fire till the cream begins to rise. If left after that it will boil. I have watched the process of making butter with this cream scores of times. It was as described, except that the hands were used to beat the cream instead of a paddle. I do not remember how long the butter took to come, but it was certainly longer than "a minute." I should think it was from five to ten minutes. Though the custom of scalding cream prevails over all this part of England, it is made up in churns, except in a few of the most behindhand farms. A great deal of this "Devonshire cream" is sold in the cream state, and it is deservedly popular. To eat with fruit it is far superior to ordinary cream, and it is so thick that it may be spread on bread and eaten like butter. It is often recommended by doctors for patients who require to put on flesh. WM. L. COUPER.

Cannington Manor, Sask., Canada, Dec. 17.